A FINANCIAL ANALYSIS OF DIVISION I-A ATHLETIC PROGRAMS

By

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TABLE OF CONTENTS

page

ACKNOWLEDGMENTS..... iii

LIST OF TABLES..... vi

ABSTRACT..... viii

CHAPTERS

1 INTRODUCTION..... 1

Statement of the Problem..... 4
Purpose of the Study..... 4
Research Questions..... 5
Definitions..... 6
Significance of the Study..... 7
Limitations..... 8

2 REVIEW OF THE LITERATURE..... 9

Introduction..... 9
Equity in Athletics Disclosure Act..... 9
Five Year Changes in Collegiate Athletics by Gender..... 12
Financing Collegiate Athletic Programs..... 13
Institution's Athletic Income Level..... 19
Institutional Profile of Income Sources..... 20
Generated revenue and direct expenses by sport..... 22
Comparative expenses: percent of direct expense..... 22
Institutional averages of income and expense trends..... 23
Generation, Allocation, and Accountability of Revenues..... 24
Procedures Governing NCAA Division I-A Athletic Programs
Operating Expenses..... 32
Chapter Summary..... 35

3 METHODOLOGY 37

Introduction 37
Target Population 39
Independent Variables 40
Dependent Variable 41
Instrumentation 41
Data Collection 42
Statistical Analyses 42
Chapter Summary 43

4 PRESENTATION OF DATA 45

Introduction 45
Research Questions 45
Additional Analyses 59
Chapter Summary 71

5 CONCLUSIONS AND RECOMMENDATIONS 75

Introduction 75
Discussion of the First Mathematical Model 77
Discussion of the Second Mathematical Model 80
Discussion of Other Analyses 82
Chapter Summary 86
Recommendations for Future Study 88
Final Conclusion 90

APPENDICES 92

A Division I-A institutions and conference affiliation 92

B Federal Register Equity in Athletics Disclosure Act 96

C Predictor variables and abbreviations 105

REFERENCES 107

BIOGRAPHICAL SKETCH 109

LIST OF TABLES

Table		page
2-1	Five Year Changes in Collegiate Athletics by Gender	12
2-2	Institution's Athletic Income Level	19
2-3	Institutional Profile of Income Sources	20
4-1	Number of Teams Sponsored by Division I-A Athletic Programs	46
4-2	The Top Six Revenue Producing Men's Basketball Programs	47
4-3	Revenue Producing Division I-A Women's Basketball Programs	48
4-4	Profitability of Division I-A Athletic and Football Programs	49
4-5	Sears Cup Rankings and Fiscal Solvency for Division I-A Football and Overall Athletic Programs	50
4-6	Women's Revenue	55
4-7	Average Head Coaches Salary for Male Sports	57
4-8	Average Head Coaches Salary for Female Sports	58
4-9	Means and Standard Deviations for Predictor Variables	60
4-10	Corelational Analyses of Significant Predictor Variables	61
4-11	Probability Levels of Independent Predictor Variables with their Relationship on Profit	62
4-12	Probability Levels of Independent Predictor Variables with their Relationship on Football Profit	64

Table page

4-13 The Top Ten Revenue Producing Institutions in Division I-A Football and their Conference Affiliation..... 66

4-14 Total Revenue Generated by Division I-A Athletic Programs..... 66

4-15 Division I-A Athletic Programs Generating Greater than 31 Million Dollars..... 67

4-16 Total Expenses Dispersed by Division I-A Athletic Programs..... 68

4-17 Division I-A Athletic Programs Appropriating Greater than 32 Million Dollars..... 69

4-18 Profit/Deficit Ranges of Division I-A Athletic Programs..... 70

4-19 Top 50 Universities Ranked in the Sears Cup and Conference Affiliation..... 71

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The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. This model was developed to assist administrators of collegiate athletic programs by identifying the contributing variables believed to be associated with a profit producing athletic department. The 112 NCAA schools that competed in Division I-A Football in 1996 comprised the target population. The 1995-96 Equity in Athletics Disclosure Act survey was used to collect data from the 112 Division I-A Football programs. There were thirteen research questions addressed in this study. All questions compared one of the independent predictor variables and the effect on the dependent measure, fiscal solvency. Multiple regression techniques were used to test the relationship of the independent variables with the dependent variable.

The first mathematical model was constructed to assess profit. In this model, four predictor variables were significant. These included football profit, men's and women's basketball profits, and the recruiting expenses allocated to male athletes. A second mathematical model was constructed to assess football profit. In this model, three predictor variables were significant. These included revenue, women's basketball profit, and percent male athletes. Only women's basketball profit was significant in both models.

No published research studies to date had developed a mathematical model to determine the degree to which selected variables related to the fiscal solvency of Division I-A athletic programs. Identifying which variables influence fiscal operations could aid educational administrators in determining how revenues are best allocated in an effort to operate a profit producing athletic program. This study attempted to contribute to the existing body of knowledge that focused on the financial solvency of Division I-A collegiate athletic programs. The results of this study could potentially aid administrators in determining if existing resources were allocated effectively or if changes should be made that could increase the number of athletic programs that are revenue producing.

CHAPTER 1
INTRODUCTION

Leaders involved in the administration of Division I-A athletic programs have been confronted with a growing number of challenges including finances, sponsorship, eligibility, and compliance (Howard, 1995). Few of these aspects were as important as the pressure to operate an athletic department that was financially solvent. With the decline of available resources, major athletic programs and specifically their athletic directors, must find alternative methods to produce revenue that will alleviate deficits. Escalating costs and gender equity were two factors that intensified these budgetary pressures confronting intercollegiate athletic programs (Howard, 1995).

According to the National Collegiate Athletic Association (NCAA), 30% of the 112 athletic programs that competed in Division I-A football in 1995 produced deficits (Fulks, 1996). These finding were consistent with the research conducted by Raiborn (1990), which indicated that 45% of the football programs ranked in the top 25 in Division I-A, incurred deficits that averaged $638,000 annually. Football, a sport that many people considered to be revenue producing, contributed rather than alleviated financial burdens. Another factor that exacerbated the bleak financial picture was that "nonrevenue" men and women sports generated only eight% of the athletic department revenues, but accounted for 28% of its cost (Fulks, 1996).

Calculating the exact revenue generated by collegiate athletic programs was a difficult process to assess. Athletic department employees, working as autonomous or semi-autonomous units, lacked standardized accountability systems. As a result, efforts to accurately determine their financial status was problematic. Often, administrators of athletic programs refused to open their books to faculty athletic committees. According to Sperber (1990), they erected "Iron Curtains" around their operations. Even public universities that benefitted from state or federal funds, were reluctant to disclose information regarding their athletic department's fiscal solvency. There was a long standing tradition among Division I-A athletic programs to remain quiet about their financial status.

Commercialization of college sport has been widely acknowledged for the past 100 years. However, during the last decade, there was a major shift toward commercialization of college sport that included sponsorship packages with corporate businesses. Proposals were made to shift athletic programs away from the deficit producing operations that were traditionally considered the norm. Institutions were now obligated to obtain the financial resources necessary to meet athletic fiscal goals (Mangan, 1996).

Colleges and universities proposed eliminating athletic programs entirely from their campuses in an effort to alleviate financial deficits. Supporters of this idea pointed to institutions such as Johns Hopkins and the University of Chicago. These schools were consistently able to attract quality students without sponsoring football or men's basketball. Reducing scholarships by 20% also was proposed to ameliorate the deficits

within athletic programs. These suggestions prompted universities to consider adopting accountability practices to ensure that athletic programs become fiscally solvent. Title IX compliance, completion of the Equity in Athletics Disclosure Act, and the Sears Director's Cup were all useful assessments of an athletic department.

Title IX of the Education Amendments of 1972 was a federal civil rights statute that prohibited sex discrimination in education programs that received or benefited from federal funding. Because nearly all institutions received or benefited from federal funding, nearly all institutions must comply with Title IX. The scope of these amendments included athletic programs, therefore Title IX served as the principal federal legislation related to gender equity for intercollegiate athletic programs (Grace, 1996).

In 1994, Congress passed the Equity in Athletics Disclosure Act (60 Fed.Reg. 229 (1995)). The Equity in Athletics Disclosure Act (EADA) required all co-educational institutions of higher education that participated in Title IV, Higher Education Act programs, to prepare annually and make available to students, potential students, and the public, a report on participation rates, financial support, and other information on men's and women's intercollegiate athletic programs (Federal Register, 1995).

The Sears Director's Cup was sponsored by the National Association for Directors of College Athletics which honored the champions of all NCAA divisions. Division I-A athletic programs which competed in 20 sports divided equally by gender were eligible for the rankings. Each institution was awarded points in a pre-determined number of sports based on the teams performance. Championships won at the conference and national level also contributed to a teams ranking in the Sears Cup.

Statement of the Problem

With diminishing budgets in higher education, most intercollegiate athletic programs were faced with flat revenues at best (Grace, 1996). In addition, pressures to meet Title IX and Gender Equity standards forced universities to systematically establish solutions that allowed an athletic department to remain competitive during this transition of compliance. With an increase of additional expenses including scholarships, travel, and recruiting, Division I-A athletic departments must develop other means to generate additional revenue.

Purpose of the Study

The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. This model was developed to assist administrators of collegiate athletic programs by identifying the contributing variables believed to be associated with a profit producing athletic department. Specifically, this study was conducted to determine if there was a relationship between the fiscal solvency of Division I-A athletic programs and (a) the percentage distribution of expenses by gender; (b) the number of sports sponsored; (c) the profit/loss of women and men's basketball; (d) men's football profit/loss; (e) ranking in the 1996 Sears Directors Cup standings; (f) total number of athletes and percentage by gender; (g) operating expenses of each gender; (h) recruiting expenses by gender; (i) percentage recruiting by gender; (j) revenue generated by gender; (k) scholarship aid by gender; (l) average head coach's salary for male sports and (m) average head coach's salary for female sports. The 112

NCAA schools that competed in Division I-A Football in 1996 comprised the target population.

Research Questions

The research questions examined in this study included the following:

1. Was there a relationship between fiscal solvency and the percentage distribution of expenses by gender?
2. Was there a relationship between fiscal solvency and the number of sports sponsored by an institution?
3. Was there a relationship between fiscal solvency the profit/loss of women and men's basketball?
4. Was there a relationship between fiscal solvency and football profit/loss?
5. Was there a relationship between fiscal solvency and an universities ranking in the 1996 Sears Directors Cup standings?
6. Was there a relationship between fiscal solvency and total number of athletes and percentage by gender?
7. Was there a relationship between fiscal solvency and the operating expenses of each gender?
8. Was there a relationship between fiscal solvency and the recruiting expenses by gender?
9. Was there a relationship between fiscal solvency and the percentage of recruiting expenses by gender?

10. Was there a relationship between fiscal solvency and the revenue generated by gender?

11. Was there a relationship between fiscal solvency and the scholarship aid by gender?

12. Was there a relationship between fiscal solvency and the average head coach's salary for male sports?

13. Was there a relationship between fiscal solvency and the average head coach's salary for female sports?

Definitions

Athletically related student aid Includes any scholarship, grant, or other form of financial assistance, the terms of which required the recipient to participate in a program of intercollegiate athletics at an institution of higher education in order to be eligible to receive that assistance.

Division I-A Includes institutions that played at least 60% of their regular season games against other Division I-A institutions (Fulks, 1996). Seven or more men's and seven or more women's, or alternatively six or more men's and eight or more women's sports must be sponsored by an institution to be classified as Division I-A (Fulks, 1996).

Equity in Athletics Disclosure Act (EADA) Public Law 103-382, was enacted on October 20, 1994, required certain institutions of higher education to disclose annually, to students, potential students, and the public financial, participation, and other information concerning the institution's intercollegiate athletic programs.

Fiscal Solvency Was measured by total profit/loss which was defined as total revenues minus total expenses.

Operating expenses Were expenditures for lodging, meals, transportation, officials, uniforms, equipment, salaries, grant-in-aid, contract game settlements paid to opposing teams, and other disbursements required for the current operation of the athletic program.

Revenues Were the financial measure of gross income earned and other funds collected by an organization (Raiborn, 1990).

Sponsorship Was a term indicating that a university has a preestablished number of teams in men's and women's sports that play competitively. For example, there were 112 teams sponsored in Division I-A football. Survey respondents were asked to indicate the number of men and women's teams sponsored within their athletic department.

Significance of the Study

No researchers to date had described a mathematical model to determine the degree to which selected variables related to the fiscal solvency of Division I-A athletic programs. This study focused on the financial solvency of Division I-A collegiate athletic programs. Identifying which variables influence fiscal operations could aid educational administrators in determining how revenues are best allocated in an effort to operate a profit producing athletic program.

Second, the results of this study could potentially aid administrators in determining if existing resources were allocated effectively or if changes should be made that could increase the number of athletic programs that are revenue producing. Finally,

collegiate athletics have had a significant impact on the reputation of higher education institutions. Any effort to assist leaders of Division I-A athletic programs in developing a mathematical model may result in greater numbers of athletic programs at the Division I-A level becoming revenue producing.

The purpose of the study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. Developing a mathematical model that facilitated the process by which athletic administrators reexamine the financial situation of their respective institutions would enhance their ability to administer programs.

Limitations

The greatest limitation of this study was its generalizability. Since data were obtained only from those institutions that competed in Division I-A football, the generalizability of this study was limited solely to those schools. The findings of this study should be considered only in the context of the Division I-A group rather than with institutions that were classified in lower divisions. Furthermore, the models developed had limited applicability to actual practice.

When analyzing the data, the researcher assumed that the responses were an accurate representation of the athletic program's fiscal reality. The researcher assumed that the respondents reported what was, rather than what they thought ought to be. There may be differences in reported data using the Equity in Athletics Disclosure Act, among the universities because this was the initial year the report was used. Although the Equity in Athletics Disclosure Act was established to create a consistent financial measure, inconsistencies in the reporting of data were a limitation.

CHAPTER 2
REVIEW OF THE LITERATURE

Introduction

The purpose of the study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. The purpose of this chapter was to provide (a) a historical overview of the Equity in Athletics Disclosure Act; (b) development of the research literature which reported the financing of collegiate athletics; (c) a discussion concerning the generation, allocation, and accountability of revenues; (d) procedures governing the operating expenses of NCAA Division I-A athletic programs and the relationship of the Equity in Athletics Disclosure Act on fiscal solvency.

Equity in Athletics Disclosure Act

The Equity in Athletics Disclosure Act (EADA) was passed by the Senate and signed into Law by President Clinton on October 20, 1994, as section 360B of the Improving America's Schools Act of 1994 (IASA), Public Law 103-382 (Grant, 1997). The Secretary of Education issued a final rule to amend the Student Assistance General Provisions regulations to implement changes made by the EADA to the Higher Education Act of 1965, as amended.

The EADA was a "sunshine" law designed to educate prospective students and student athletes of the commitments of an institution to providing equitable athletic

opportunities for its men and women students (EADA, 1996). The Act required certain coeducational institutions of higher education to prepare annually, and to make available to students, potential students, and the public upon request, a report on participation rates, financial support, and other information on men's and women's intercollegiate athletic programs.

Congress reported (Public Law 103-382) that

1. Participation in athletic pursuits played an important role in teaching young Americans how to work on teams, handle challenges, and overcome obstacles.

2. Participation in athletic pursuits played an important role in keeping the minds and bodies of young Americans healthy and fit.

3. There was an increasing concern among citizens, educators, and public officials regarding the athletic opportunities for young men and women at institutions of higher education.

4. A recent study by the National Collegiate Athletic Association found that in Division I-A institutions, only 20% of the average athletic departments budget of $1,310,000 was spent on women's athletics; 15% of the average recruiting budget of $318,402 was spent on recruiting female athletes; the average scholarship expenses for men was $1,300,000 and $505,246 for women; and an average of 143 grants were awarded to male athletes and 59 grants to women athletes.

5. Female athletes received less than 18% of the recruiting dollars and less than 24% of the athletics operating dollars.

6. Male athletes received approximately $179,000,000 more per year in athletic scholarship grants than female college athletes.

7. Prospective students and prospective student athletes should be aware of the commitments of an institution to providing equitable athletic opportunities for its men and women students.

Compliance with the EADA required coeducational colleges and universities that participated in Federal student aid programs and sponsored intercollegiate athletic

programs to make available, in an annual report, the following information (Grant, 1997). For each varsity team, the number of participants as of the team's first scheduled contest, the total operating expenses (lodging, meals, transportation, officials, uniforms, and equipment) attributable to each team, whether the head coach is male or female and if their assignment is full-time or part-time, and the number of assistant coaches who are male and female, in addition to their workload percentage, should be included.

Each team also provided the total amount of money spent on athletically related student aid, the ratio of financial aid awarded by gender, the total recruiting expenditures for both male and female athletes, the total revenues generated by all men's and women's teams, and the average annual institutional salary of head and assistant coaches of all teams across all sports. Information was to be compiled on an annual basis, and to be disclosed to students, potential students, and the public on request. The report was to be made available no later than October 15 of each calendar year.

In 1991, the NCAA surveyed its members' expenditures for women's and men's athletic programs. While the study was not intended to measure Title IX compliance by institutions, the data provided a basis for comparison between men's and women's programs. Following the publication of this study in the spring of 1992, the NCAA executive director established a gender-equity task force to define gender equity, examine NCAA policies, evaluate their impact on gender equity, and recommend a path toward measuring gender equity in intercollegiate athletics. Among the task force's recommendations was a repetition of the 1991-92 gender equity survey of the membership conducted at five-year intervals.

As shown in Table 2-1, over a five year period, women athletes comprised a larger percentage of student athletes than men. Furthermore, women athletes received more of the operating, recruiting, and scholarship monies.

Table 2-1

Five Year Changes in Collegiate Athletics by Gender

	1992		1997		
	Average Number	Proportion (percent)	Average Number	Proportion (percent)	Change
Athletes					
Men	323	71%	289	66%	-34
Women	130	29%	151	34%	21
Operating Expenses					
Men	1,049,020	80%	2,428,600	79%	1,379,580
Women	262,570	20%	662,800	21%	400,230
Recruiting Expenses					
Men	268,996	84%	256,511	75%	-12,485
Women	49,406	16%	84,550	25%	35,144
Scholarships					
Men	1,291,118	72%	1,575,821	66%	284,703
Women	505,246	28%	824,889	34%	319,643
Head Coaches Salaries					
Men	396,791	66%	505,127	61%	108,336
Women	206,106	34%	320,965	39%	114,859
Assistant Coaches Salaries					
Men	624,312	84%	795,180	78%	170,868
Women	118,897	16%	223,501	22%	104,604

Source: Athletic Director's Financial Survey (1996).

In 1994, Congress passed the Equity in Athletics Disclosure Act (EADA), however, there was no federal regulation established to mandate an instrument for the data collection. The NCAA research staff, with the counsel of the NCAA Research Committee and the NCAA Committee on Women's Athletics, designed the form and sent it to all member institutions in June 1996. Included with the survey instrument was a cover letter indicating completion of the form would satisfy the requirements of the EADA and the NCAA gender-equity survey (Grant, 1997).

Financing College Athletic Programs

Intercollegiate athletic programs received tax support and donations from external sources (Howard, 1995). However, many athletic departments in state colleges and universities lost a portion of their traditional direct tax support. Symptomatic of a national trend, the Illinois Board of Higher Education in 1992 proposed total elimination of state taxes for sport programs at universities in the state. Approximately $100 million dollars of support for intercollegiate athletics at the state's twelve colleges and universities was in jeopardy (Howard, 1995). Similarly, during 1993 nearly $10 million in state support for intercollegiate athletics in the state of Washington was at risk as the legislature struggled to close a $1.8 billion budget shortfall. As a result, even within public universities many athletic departments operated essentially as private enterprises largely independent of the academic governance of the institution (Howard, 1995).

Similar to their counterparts in private universities, an increased number of athletic departments in public colleges and universities subsidized their athletic programs. Athletic departments tried to maintain a balanced budget by careful management of

tuition and fee contributions. They generated revenue from gate receipts, donations, sponsorships, and other fund raising techniques. Larger public institutions generated additional revenues by securing media rights through television and radio sales.

The contemporary athletic director was faced with a different set of challenges than his or her predecessor, while maintaining the fiscal solvency of a collegiate sports program. As the need to subsidize departmental budgets became a reality, fiscal managers may need to manage the budget like a business, rather than continue in a "sport" mode. Fiscal managers must also consider how major landmark legislation such as Title IX, Gender Equity, and Compliance may influence the financial solvency of Division I-A collegiate athletic programs.

According to Raiborn (1990), annual expenditures for intercollegiate athletic programs exceeded $1 billion dollars. The effect of commercialism on the fiscal management of Division I-A athletic programs was evident in the salaries of coaches, emphasis of television contracts, pressures to win, and the emergence of corporate sponsorships. Nike, Reebok, and Adidas were leaders among many companies who paid large sums of money to collegiate athletic programs. In exchange for this contribution, athletes and coaches endorsed and used their products. For example, Nike's chairperson, Phillip H. Knight donated, $25 million in 1996 to the University of Oregon where he received his bachelor's degree. The money was used to endow 17 chairs and professorships plus assist with the renovation of the law school (Nicklin, 1996).

The most common application of Title IX has been in the sports arena, although serious questions about whether this was Congress's original intent exist (Sheehan,1996). Title IX of the Educational Amendments of 1972 stated that

> no person in the United States shall, on the basis of sex be excluded from participation, denied the benefits of, or be subjected to discrimination under any educational program receiving federal aid. (Grace, 1996, p.17)

This definition established the criteria for determining an institution's compliance. The three primary areas that determined an institution's compliance were (1) athletic financial assistance, (2) accommodation of athletic interest and abilities, and (3) other program areas. Each of these variables is discussed separately.

First, financial assistance must be awarded based on the total number of male and female athletes. The test was financial proportionality. That is, the total amount of athletic aid must be substantially proportionate to the ratio of male and female athletes (Grant, 1997). Secondly, the selection of sports and competition must effectively adapt to the students' interest and abilities.

The 1979 policy interpretation provided that as part of this determination, the Office of Civil Rights apply the following three-part test to assess whether an institution was providing nondiscriminatory participation opportunities for individuals of both sexes. In 1996, Grace identified the criterion for nondiscriminatory participation involved a determination of the following

1. Whether the intercollegiate level participation opportunities for male and female students were provided in numbers substantially proportionate to their respective enrollments;

2. Where the members of one sex have been and are under-represented among intercollegiate athletics, whether the institution can show a history and continuing practice of program expansion that is demonstrably responsive to the developing interests and abilities of that sex; and

3. Where the members of one sex are under-represented among intercollegiate athletes, and the institution cannot show a continuing practice of program expansion, whether it can be demonstrated that the interest and abilities of the members of that sex have been fully and effectively accommodated by the present program (Grace, 1996, p. 24).

The three-part test yielded methods for measuring compliance with the requirement to provide individuals of each sex with nondiscriminatory opportunities to participate in intercollegiate athletics. If an institution met any part of the three-part test, the Office of Civil Rights (OCR) determined that the institution was meeting the requirement (Grant, 1997). Noting the importance of the requirement to provide nondiscriminatory participation opportunities was only one of several factors that OCR examined to decide if an institution met the athletics provision of Title IX. When an "overall determination of compliance" was made, OCR examined the institution's total program.

Thus, OCR considered the effective accommodation of interest and abilities with equivalence in the availability, quality, and kinds of other athletic benefits and opportunities provided to male and female athletes. These other benefits included coaching, equipment, facilities, recruitment, and the scheduling of games among a number of other requirements. Though the rules did not specify what substantial proportionality was, some out of court settlements suggested that five percentage points might be sufficient. A research study reported in 1997 found only nine out of 112

Division I-A programs passed the proportionality test. This was the same number that passed in 1995 (Dodd, 1997). Critics proposed that Title IX was a law with no substance. Historically, it required a lawsuit by a female athlete to initiate corrective action. The Office of Civil Rights could cancel a college's federal funding if it does not comply with Title IX, but it never has (Dodd, 1997).

A counter argument to Title IX has been whether football should be included in the equation. College officials have contested that those schools with football programs have not complied with Title IX since the law was passed in 1972. Football teams simply added too many athletes and dollars to the men's side of the ledger. However, a few large NCAA Division I-A colleges initiated methods to balance the numbers without eliminating or penalizing the football program (McGraw et al.1997).

The University of Kansas decided in 1994 that within five years they would be in compliance with the law. The school was only a few percentage points from reaching proportionality in 1997 (McGraw et al.1997):

> It's been a challenge, but we said this was what we are going to do and we're going to do it, said athletic director Bob Frederick. At the outset we said we were not going to sacrifice our existing sports but we were going to find a way to come up with the extra revenue to meet the challenges (McGraw et al.1997, p.3).

The University of Kansas raised $3 million annually for both men's and women's scholarships. During the last two years, Kansas added crew and soccer teams by increasing the student fee $6 over two years. Athletics also received a boost in revenue when the school joined the Big Twelve conference in 1996 (McGraw et al.1997).

Washington State University took a giant step toward equity during the 1980s when the first lawsuit defining proportionality was filed against the University in 1979. Eight years later, after an appeal, the state supreme court ruled that the university had to reach numeric proportionality without exempting the football team as planned. To achieve equity, Washington State followed the same format that other schools used. They added a women's crew team that had 86 members with the average operating cost per athlete being only 14% of the operating cost for a football player (Grant, 1997).

The interpretation of Title IX was if females constituted 50% of the student body, then 50% of the athletics scholarships must be awarded to women. The counter argument suggested since football generated revenues rather than costing the university money, it should be excluded. Gender Equity and Title IX appeared in both the literature and conversation as interchangeable terms. Since compliance with Title IX was the law, many individuals felt that gender equity was a moral concept that extended beyond the law (Grace, 1996). Gender equity entailed implementing policies that made all aspects of a woman's sports program, including administrative support, uniforms, and decision making, equal to men's programs (Frankel, 1992).

The NCAA Gender-Equity Task Force defined gender equity as an atmosphere where fair and equitable distribution of overall athletic opportunity and resources proportionate to enrollment were available to women and men. No student athlete, coach, or athletic administrator would be discriminated against in any way in the athletic program based on gender. An athletic program was considered gender equitable when either the men's or women's sports program accepted the overall conditions of the other

gender. In the spring of 1992, the NCAA executive director established a gender-equity task force to define gender equity. Goals of the task force were to examine NCAA policies and their impact on gender equity, to recommend a process for measurement, and realize equity in intercollegiate athletics. The task force recommended that the 1991-92 gender-equity survey of the membership be repeated at five-year intervals (Grant, 1997).

In 1994, Congress passed the Equity in Athletics Disclosure Act (60 Fed.Reg. 229 (1995)). This required that all coeducational institutions of higher education that participated in any federal student financial aid program having intercollegiate athletics programs provide specific information on these programs. Football, as previously mentioned, complicated the issue of gender equity. Most Division I-A athletic programs could have readily achieved proportionality were it not for football. However, with rosters that typically exceeded 100 players, football unbalanced the participation opportunities in favor of men.

A 1995-96 financial survey was conducted to assess an institution's financial operations. Findings and the participants income level are identified in Table 2-2.

Table 2-2
Institution's Athletic Income Level

	Number of Institutions	Percent
Greater than $30 Million	7	8%
$25 to 30 Million	8	9%
$20 to 25 Million	16	18%
$15 to 20 Million	15	17%
$10 to 15 Million	20	23%
$ 5 to 10 Million	18	21%
$ Less than $5 Million	3	4%

Source: Athletic Director's Financial Survey (1996)

Participants included 76 state-supported universities and 11 private institutions (Baughman, 1996). Findings in this study indicated that income exceeded expenses for 48 institutions responding to this year's survey, while 30 institutions reported a deficit and nine stated income equaled expenses. Profits ranged from $2,338 to over $9 million. Deficits ranged from $1,480 dollars to almost $6 million dollars. Football was the primary source of income to fund an athletic program. Total revenue reported for the 87 schools amounted to nearly $1.5 billion dollars. Six of the 87 respondents reported that overall revenue from men's basketball exceeded income generated from football.

Nearly 66% of athletic department income was derived from revenue associated with ticket sales, television, and gifts. Institutional support comprised another 15%. Athletic departments relied on various sources of income to generate revenue (Baughman, 1996). Institutional profile of income was represented in Table 2-3.

Table 2-3
Institutional Profile of Income Sources

Source	Percentage of Total Income
Investment Income	1.97%
State Aid	2.17%
Away Game Guarantees	5.39%
Other income	5.59%
Student Fees	6.79%
Auxiliary Income	7.31%
Institutional Support	7.93%
Post-Season Compensation	8.16%
Radio/Television	10.72%
Gift Income	14.66%
Home Gate Receipts	29.30%

Source: Athletic Director's Financial Survey (1996)

Home gate receipts and away game guarantees provided 34.7% of athletic department income while radio/television and post-season revenue contributed 18.9% (Baughman, 1996). Universities which sold out football stadiums, played games on national television, and played in a post season bowl game appeared to generate substantial income. Baughman (1996) also identified that gifts and donations were a major source of revenue, accounting for 14.7% of income. However, direct state aid, a resource many believed to be a major contributor to a universities athletic department's income, accounted for only 2.5% of the financial resources available to public institutions. Private universities provided substantially more institutional support (16.7%) compared to public universities (Baughman, 1996).

The average expense of operating an athletic department during the 1995-96 year amounted to $16.6 million. Leading the institutions was a school with a $38.2 million dollar budget, while the smallest budget was $4.2 million. Recruiting dollars, oftentimes blamed for extravagant spending, accounted for only 2.2% of the operating expenses. Scholarships continued to account for a large percentage of the budget, requiring 26.1% of the operating budget, while public institutions utilized 14.4% of their monies for athletic grants.

Football accounted for $628 million dollars which included $547 million of direct support and $81 million of auxiliary income attributed to football. Men's basketball also produced a profit, while other men's sports and women's sports generated less revenue than expenses (Baughman, 1996). Figure 2-1 illustrated the revenue generated and the direct expenses by sport (in millions) for 1995-96.

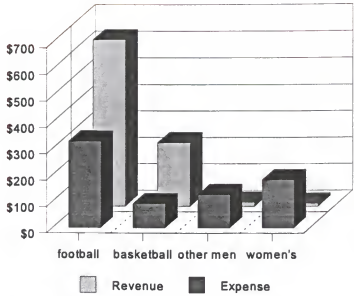

Figure 2-1. Generated revenues and direct expenses by sport

Source: Athletic Director's Financial Survey (1996)

Data comparing expenses for fiscal year is provided in Figure 2-2.

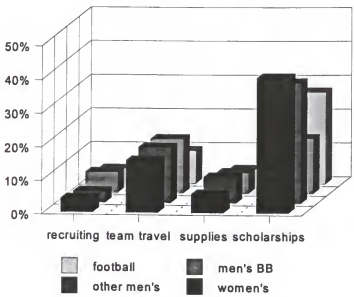

Figure 2-2. Comparative expenses and percent of direct expense.

Source: Athletic Director's Financial Survey (1996)

Men's basketball accounted for a larger percentage of expenses for recruiting and team travel than men's football. Scholarship expenses constituted the largest percentage of expenses for football and other men's sports and women's athletics (Baughman, 1996).

Research studies by Raiborn (1990) and Fulks (1996) identified financial relationships of NCAA athletic programs, although these reports contained data on all divisions and classifications. Because this was the first Division I-A financial survey, no historical data were available to offer a trend analysis. However, there were previous surveys (from 1987-88 to 1994-95) compiled by the now defunct College Football Association (CFA) that provided a reasonable barometer to make comparisons. Figure 2-3 illustrated the financial trends of CFA members regarding income and expenses

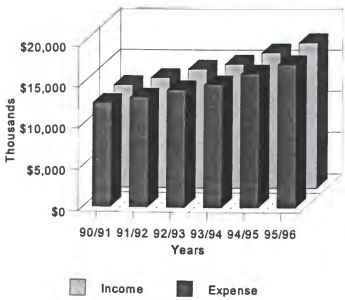

Figure 2-3. Institutional averages of income and expense trends.

Source: Athletic Director's Financial Survey (1996)

When asked if the University of Michigan, one of the most prestigious institutions for athletics, could achieve gender equity without dropping any men's sports, the cochair of Michigan's gender equity committee said, "I think it is possible; whether or not it is practical, that's the question...Not dropping anything would be the ideal situation, but I don't know if that will be practical." (Beckett 1994).

The financial status of college athletic programs were dependent upon factors that included Title IX, gender equity, state support, and private donations. Athletic leaders, either by voluntary choices or from outside pressures, found themselves creating various techniques in order to remain revenue producing. Title IX and gender equity in particular demanded immediate attention to ensure that an institution's budget was proportionally dispersed among their female and male student athletes.

Generation, Allocation, and Accountability of Revenues

Fulks (1996) reported that the average Division I-A collegiate athletic program for fiscal year 1995 generated 66% of their revenue from football, 25% from men's basketball, and four% from other sports, and five% of revenue was unrelated to sports' programs. Pastore and Mahony (1997) reported that Division I-A institutions continued to receive more than 90% of their sports team revenue from football and men's basketball.

During the last 23 years, the NCAA's total revenues increased more than 8,000%. Corporate sponsorship provided Division I-A athletics with additional revenues. For example, the NCAA's $1.7 billion television contract for exclusive television rights for the men's basketball championships was greater than any single professional sports

league's deal with any network (McGraw et al.1997). Ticket sales generated the largest percentage of revenues collected by Division I-A athletic programs. For example, the University of Nebraska sold $11.3 million dollars worth of football tickets during the 1996 season (McGraw et al.1997).

Data submitted to the NCAA under the Equity in Athletics Disclosure Act for the 1995-96 school year, revealed that the University of Florida was one of six schools that generated more than $30,000,000 in total athletic revenue. Florida generated $36,897,614 in revenues during that period. Joining Florida, were The University of Michigan, the University of Tennessee, Ohio State University, the University of Nebraska, and the University of Washington (McGraw, 1997).

These schools have established strong football tradition. All tickets for football games were routinely sold out. Stadiums at these universities were also near the top in the number of seats made available to spectators. One home game at the 106,000 seat Michigan stadium generated more than a million dollars in ticket sales. Twenty-two schools generated revenue between 20 and 29 million dollars for the 1995-96 year (McGraw, 1997). Included in the top seven were the University of Wisconsin, Pennsylvania State University, the University of Texas at Austin, the University of South Carolina, the University of Kentucky, Auburn University, and the University of Oregon (McGraw, 1997).

In Division I-A college athletics, football ticket sales generated an average of 30% of athletic departments revenues. Other items which produced revenue included signage, concessions, television, sports camps, and special events that produced 20% in revenues.

Donor contributions were the third largest source of revenue with an average of 15%. Finally, postseason compensation accounted for four% of the revenues (Fulks, 1996).

Teams that received postseason compensation were typically required to split this money with conference members. For example, the University of Florida received $8.4 million for their participation in the 1997 Sugar Bowl. However, most of this money was spent on game related expenses and divided by the Southeastern Conference (SEC). In fact, 75% of the money was immediately paid to teams in Florida's conference (Judd, 1997). The University of Florida received $8,425,000 but was required by conference rules to allocate $6,070,600 to the 11 teams in the SEC. After sharing their earnings, Florida generated $2,354,400. Almost half that total, $1,020,347 was needed to pay expenses in New Orleans, Louisiana the site of the game. The remainder of the funds were deposited into the University Athletic Association's reserves (Judd, 1997).

Sales of licensed merchandise was another way athletic departments supplemented their budgets. The following schools were the leaders in merchandise sales for 1996. Topping the list was the University of Michigan, followed by North Carolina at Chapel Hill, the University of Kentucky, the University of Florida, and Florida State University. Each of these schools had a long standing tradition of football dominance or excellence in men's basketball (Dodd, 1997).

Direct government support only accounted for two% of the revenues for college athletic programs despite a common misconception that this was a larger percentage of the operating budget (Fulks, 1996). In 1995, the average Division I-A athletic program received two-thirds of their total revenues from the sport of football. This represented an

increase of 19% when compared with 1989 (Fulks, 1996). According to the same study, over the same period, men's basketball revenues increased from 18% to 25%. This is not surprising given the increasing number of college basketball games televised during the season. On any given day, one to three collegiate basketball games was televised across the nation.

Significant increases were made in dollar amounts generated from women's athletics programs between 1985 to 1989. In 1985, the average program accounted for $129,000. Four years later, revenues increased to $621,000 (Fulks, 1996). However, this growth did not last for an extended period. In 1993, revenues dropped to $492,000, a 20% decrease and accounted for only four% of collegiate athletic departments' total budget. In 1995, revenues increased to $589,000 but this amount was still below the 1993 total.

An alarming pattern in college athletics was the growing deficit among women's programs. In 1989, female athletic programs lost $1,184,000, an increase of 75% over the 1985 deficit. During 1993, revenues increased to $1,314,000 (Fulks, 1996). Two years later, deficits climbed to $1,702,000. Setting up new programs along with the monetary increases in scholarships were two of the factors that resulted in increased deficits.

Employees of a typical Division I-A athletics program earned a minimum of $3.24 million in 1996-97 (Naughton, 1997). This number appeared to be low considering that a portion of the institutions did not report compensation for their highest-paid personnel, and no schools provided data for other staff members who were employed for

specific events. Men's basketball coaches were the highest paid individuals in collegiate sports, with median compensation salaries of $290,000. Next, football coaches earned $268,000, while athletic directors made $158,200. The athletic director at the University of Texas, conducted a survey which revealed these figures

* In 1996-97, the median personnel expenditures for men's athletics was more than $1.9 million.

* The median personnel expenditure for women's sports was $431,282, less than half of football alone ($890,330) (Baughman, 1997).

The median salary for a softball coach was 56% of that for a baseball coach. Women's soccer, swimming, and tennis coaches earned median salaries that were 92% of those for men's coaches. The athletic director at Ohio State University, a school that sponsored 34 sports, offered his viewpoint on coaches salaries. "There is nothing that says that the field-hockey coach should make what the head football coach makes. We compensated our women's-volleyball coach more than our men's-volleyball coach because in our area, there was a stronger market for women's volleyball (Naughton, 1997). "

In the book, *Keeping Score: The Economics of Big Time Sports*, an economics professor at Notre Dame, discussed how the profitability of big time college sports programs has yet to be thoroughly examined in a public forum. His research focused on schools that had Division I-A football programs, because he believed that football and men's basketball were virtually the only programs that generated appreciable revenue (Sheehan, 1996).

The net revenue generated by the University of Michigan's football program vastly exceeded monies generated by all other athletic programs except men's basketball. The net revenue generated from the University of Florida's football programs exceeded the gross revenue generated by collegiate soccer nationwide. A few select schools did sponsor individual sports that were self supporting, however the net revenue was inconsequential in comparison to the revenues from Division I-A collegiate football and men's basketball programs (Sheehan, 1996).

Colleges invariably reported their financial data without consistent accounting methods. These inconsistencies often projected a misleading picture of athletic finances. For example, Notre Dame's athletic budget excluded the television revenue generated from their contract with the National Broadcasting Company (NBC). Michigan's athletic revenue (like most schools) excluded licensing incomes. Thus, it was important to recognize that public promulgated reports of revenue may have included only a fraction of the total income that was earned by a particular institution.

Private schools such as the University of Miami, Duke University, and Notre Dame were assumed to have little gift income directly attributable to college athletics. Research has shown an association between winning football games and alumni contributions, in addition to enrollment increases. Northwestern University, located in Evanston, Illinois, had applications increase 30% because of the team's Rose Bowl appearance during fall, 1995 (Dodd, 1997). Another increase occurred in Northwestern's licensing revenue which escalated from $59,000 dollars in 1994 to $600,000 dollars a

year later (Dodd, 1997). Duke, Boston College, Massachusetts, and Georgetown have all profited financially from either their football or men's basketball teams (Dodd, 1997).

Most of the top collegiate athletic conferences including the Big Ten, Big Twelve, Southeastern (SEC), and Atlantic Coast Conference (ACC) had similarities between success on the field and financial solvency. Participation in a top tier bowl game was one of the major factors that contributed to characterization of programs as profit producing. The question among athletic leaders that repeatedly resurfaced was whether football success generated profits, or did profits permit football success (Sheehan, 1996).

The SEC and Big Ten both averaged $7.7 million in football net revenue. In the SEC, the "Big Five" of Alabama, Auburn, Florida, Georgia, and Tennessee had net revenues of more than $11 million each. The SEC's "Seven Dwarfs," included Vanderbilt, Kentucky, South Carolina, Louisiana St., Mississippi, Mississippi St., and Arkansas had profits that failed to exceed $6.6 million dollars. The seven universities were dwarfs in both football success and profits (Sheehan, 1996).

The Big Ten faced a similar situation. League averages included the "Big Three"of Michigan, Ohio State, and Penn St, each with profits of $12 million or more, and the "Little Eight," including Purdue, Northwestern, Illinois, Indiana, Wisconsin, Michigan St., Iowa, and Minnesota with profits ranging from Michigan State's $9.5 million to Wisconsin's $1.2 million (Sheehan, 1996).

Although the focus of this research was on the financial solvency of Division I-A athletic programs, perspectives on those teams that moved from Division I-AA to compete in Division I-A merited discussion. Understanding why universities

matriculated to other divisions based on athletics, provided valuable feedback to assist other institutions in decision making. Limited information was available that detailed the financial changes of institutions moving up to Division I-A. Specifically, minimal details were reviewed on those teams that attempted to move to Division I-A in order to produce a profitable athletic program.

Athletic departments were one of the many auxiliary components on college campuses. Along with music, theater, and library services, athletics provided entertainment for students and alumni. As an auxiliary component, it was often suggested that when a football program lost money, the program should be eliminated. Conversely, when football and men's basketball teams generated excess revenue, the argument was made that the money produced by these programs should be used to further the educational mission of the university. The University of Florida's Athletic Association (UAA), one of the top revenue producing athletic departments in the country, allocated money for several years to enhance the campus libraries by providing additional computers. Since 1986, the UAA has contributed $9 million to the school (Judd,1997).

An analysis of Division I-A programs to determine how many universities produced a profit was conducted by examining the reported costs and revenues, and ignoring administrative considerations and facilities. In 1995, 85 institutions produced a profit, while 18 institutions lost money (Sheehan, 1996). Given the potential for year-to-year fluctuations and uncertainty in the financial domain, it appeared that a surplus of $1 million would be the minimum indicator of financial solvency. Using this criterion, only 71 schools had football and men's basketball programs that were financially healthy. To

assess the accuracy of Sheehan's findings, one would need to subtract administrative overhead and maintenance costs from official net revenues. After this adjustment, the numbers of schools earning a profit diminished to 54.

Finally, when gifts and state contributions were excluded from the equation, only 41 programs were truly revenue producing. Thus, the most stringent estimate suggested that only 30% of Division I-A athletic programs can be classified as financially healthy. Among the Division I-A programs, a few made money, many survived although not without difficulty, and others operated in deficit.

Revenues at Division I-A athletic programs were generated from two primary sources, football and men's basketball. Football constituted two-thirds of the revenue for the average I-A program. Women's sports generated seven% of the budget, despite accounting for nearly 40% of the expenditures (Sheehan, 1996). Overall, the financial solvency of Division I-A athletic programs remained a concern.

Procedures Governing NCAA Division I-A Athletic Program Operating Expenses

The single greatest expense for Division I-A college athletic programs was personnel. In 1989, the Indiana University athletic department budgeted $4.66 million to finance their staff (Sperber, 1990). In 1995, the average Division I-A athletic department allocated 31% of their budget to cover salaries and benefits, while grants-in-aid accounted for an additional 17% of the athletic budget (O'Toole, 1996). The NCAA also acknowledged that many athletic programs offered scholarships to students without reporting these as operating costs.

Total expenditures for Division I-A programs were divided as follows: 48% directed toward men, a decrease from 54%, and 15% toward women, an increase from 14%. The remaining 38% was administrative cost. In 1993, two% of the expenses involved recruiting and scouting, with about 77% of that figure spent on men's sports. In football, 69% of the responding institutions reported a profit in 1995 (Fulks, 1996).

One primary goal of all Division I-A football programs was to participate in a post season bowl game. Bowl games allowed players an opportunity to extend their season, compete for a national championship, and generate additional revenue for the athletic department. A closer examination of two institutions that represented the Big Twelve conference in bowl games following the completion of the 1996 college football season revealed interesting data. The two institutions analyzed were the University of Nebraska and the University of Texas.

The University of Nebraska received an alliance bowl bid following the completion of their 1996 football season. They played in the Orange Bowl against the Big East champion, Virginia Polytech University on December 31, 1996, in Miami. Nebraska received $1.5 million dollars to play in the game. This represented their share of the conference distribution. They also received an additional $135,000 dollar hotel allowance. However, this was not enough to cover their expenses. Nebraska's expenses totaled $2,610,691 which resulted in a deficit of $1,110,691 dollars (Campbell, 1997).

Transportation expenses including charter flights for the team, staff, and family totaled $331,361.74. Additional transportation included the flights for the band, travel party, and bus trips totaled $581,516.35. Food expense was also a major expenditure for

all those involved. Meals, per diem, and bottled water contributed to the athletic department spending $617,203.16 dollars (Campbell, 1997).

One factor that augmented Nebraska's financial position was the expense of buying unsold and unused game tickets. The football team had been fortunate to have one of the strongest fan support groups of any institution in the country, selling out every home football since 1962. However, the fans anticipated that Nebraska would play in the Sugar Bowl for the National Championship. After a late season loss to the University of Texas in the Big 12 championship game, there was little interest in traveling to the Orange Bowl for the third time in four seasons (Campbell, 1997). Consequently, the athletic department allocated $915,085 dollars to purchase tickets that were not sold to fans. Entertainment including a golf outing for boosters and video games in the hotel rooms for the players accounted for another $7,650 dollars. Lodging was an expensive item despite the hotel allowance provided by the Bowl Alliance hotel allowance. The university paid $391,988 dollars to four different hotels to accommodate the needs of the players, coaches, cheerleaders, and travel party guests (Campbell, 1997).

The University of Texas also compiled expenses greater than their share of bowl revenue. Apparel, unsold game tickets, entertainment, lodging, food, and transportation contributed to expenses that totaled $1,668,969 dollars. Similar to Nebraska, Texas received $1.5 million as their share of the conference distribution (Campbell, 1997). This fell $168,969 dollars short of their total expenses.

In Division I-A college athletics, men's teams spent three and a half times the money that women's teams spent. These operating expenses were defined as lodging,

meals, transportation, uniforms, and equipment. Excluded from these expenses were coaches salaries, scholarships, and recruiting expenses, all of which were tilted heavily toward the men's programs. Men had 62% of the scholarship money, spent 73% of the recruiting money, and were responsible for 60% of the head coaching salaries (O'Toole, 1997).

Chapter Summary

The financial solvency of Division I-A college athletic programs was dictated by several key variables. Compliance with Title IX and gender equity legislation, generation of revenues, comparison of operating expenses, the number of sports sponsored, the success of the football team, and private donations collectively determined an institutions financial position.

Title IX of the Educational Amendments of 1972, established a precedent that no individual on the basis of sex could be excluded from participation or denied benefits of any educational program that receives federal aid. The Office of Civil Rights applied a three-prong test to determine if an institution is in compliance. Criteria for the three prong test included (a) athletic financial assistance (b) accommodation of athletic interest and (c) continued practice of program expansion.

Gender equity detailed policies to ensure that all aspects of a woman's sports program including administrative support, uniforms, and decision making were equal to men's programs (Frankel, 1992). Compliance with gender equity assured that there was an atmosphere whereby no student-athlete, coach, or athletic administrator was discriminated against on the basis of gender.

Revenues generated by Division I-A athletic programs were derived from a variety of sources. Ticket sales produced the largest percentage (29%) of revenue, followed by donor contributions (15%). Conference distributions, radio/television funds, and student activity fees each generated seven % respectively (Fulks, 1996). Football easily produced the largest percentage of revenue. Most Division I-A football programs produced 66% of their total athletic department's revenue. Men's basketball, the only other significant source, generated 25% of total revenues. Pastore (1997) reported that Division I-A institutions received more than 90% of their athletic revenue from football and men's basketball.

The single greatest expense that athletic departments encountered was personnel, which accounted for 31% of the operating budget, while Grants-in-aid, accounted for 17% of the operating expenses. Beyond personnel and scholarships, other expenses reported by Division I-A athletic programs included guarantees, scouting, recruiting, equipment, and travel (Fulks, 1996).

The University of Florida was one of six universities that generated more than $30,000,000 in total athletic revenue. Others included the University of Michigan, Ohio State University, the University of Tennessee, the University of Nebraska, and the University of Washington. Each of these institutions relied heavily on football ticket sales to supplement and support their overall operating budgets.

This study attempted to identify factors that contributed to the financial solvency of athletic programs. Recommendations were made to assist current and future athletic administrators in operation of revenue producing programs.

CHAPTER 3
METHODOLOGY

Introduction

The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. This was done by determining the relationship between the fiscal solvency of Division I-A athletic programs and (a) the percentage distribution of expenses by gender; (b) the number of sports sponsored; (c) the profit/loss of women and men's basketball; (d) football profit/loss; (e) rankings in the 1996 Sears Directors Cup standings; (f) the total number of athletes and percentage by gender; (g) operating expenses of each gender; (h) recruiting expenses by gender; (i) percentage recruiting by gender; (j) revenue generated by gender; (k) scholarship aid by gender; (l) the average head coach's salary for male sports and (m) the average head coach's salary for female sports.

As supported in the literature review, different methods utilized in assessing a collegiate athletic program's financial status impacted how these numbers were interpreted. In an effort to standardize the procedures implemented to compile financial data of Division I-A athletic programs, the Department of Education introduced an amendment to the Higher Education Act of 1965 known as The Improving America's School Act of 1994 (IASA), Pub. L. 103-382. The IASA provisions, titled the "Equity in Athletics Disclosure Act (EADA), required certain co-educational institutions of higher

education to prepare annually a report that is made available to students, potential students, and the public.

Information on participation rates, financial support, and other details on men's and women's intercollegiate athletic programs were included. These regulations took effect on July 1, 1996 (Federal Register, 1995). The EADA was a "sunshine law" designed to make prospective students and student athletes aware of the commitments of an institution to providing equitable athletic opportunities for all male and female students. Additional germane research was supported by the literature review in the area of financing collegiate athletic programs. Specifically, a study detailing the variables that influenced an institution's financial status could provide guidelines for athletic directors at the Division I-A level. Furthermore, standardized accounting procedures resulting from the EADA, should strengthen the inferences of the findings.

This study addressed pertinent issues regarding the financing of Division I-A collegiate athletic programs through the use of a mathematical model designed to predict fiscal solvency. Specifically, by examining selected predictor variables used as measures of the Equity in Athletics Disclosure Act, data obtained may assist athletic directors, university presidents, athletic conference commissioners, and those individuals affiliated with the National Collegiate Athletic Association in understanding the variables that contributed to the fiscal solvency of a Division I-A athletic program. The mathematical model could serve as an example to promulgate variables which influenced the fiscal solvency of Division I-A athletic programs.

Target Population

The 112 NCAA schools that competed in Division I-A Football in 1996 comprised the target population. See appendix A for a complete list of institutions and their conference affiliation.

One of the goals of this study was to aid athletic administrators in the examination of financial solvency by providing guidelines for managing resources without sacrificing competitiveness. In order to achieve this goal, an accurate representation of the financial position of Division I-A athletic programs was required. Comparisons of financial aspects of Division I-A athletic programs had previously been difficult, if not impossible, due to the lack of standardization in which this information had traditionally been reported. Universities were required to release information on their financial status as a result of the prescribed Equity in Athletics Disclosure Act enacted in October, 1994 (Naughton, 1997). All coeducational institutions that participated in federally funded student financial aid programs and sponsored an intercollegiate athletic program were required by federal law to make information pertaining to gender equity within their athletic programs available annually for public examination.

During 1969, the NCAA required member institutions to provide standardized financial information on intercollegiate programs every two years through surveys. Data was collected by the 1995-96 version of the Equity in Disclosure Act survey. Appendix B provides an example of this instrument. This population included the 112 schools that primarily comprised the major athletic conferences in the country including, the Southeastern Conference (SEC), Western Athletic Conference (WAC), Atlantic Coast

Conference (ACC), Pacific Ten Conference (PAC 10), Big Ten Conference, and the Big Twelve Conference.

Comparing the fiscal solvency of universities that sponsored a football team with others that did not could result in spurious findings. Because football produced 66% of the revenue for schools in Division I-A, analyzing relationships between schools that played football with those that did not offered minimal results. Furthermore, only those schools who provided complete data on their respective Equity in Athletics Disclosure Forms were analyzed. Schools with missing data were omitted from portions of the analysis. Even though institutions are required by law to provide information about their financial solvency, a number of fiscal administrators elected not to complete the questionnaire. Thus, a bias could be created which poses a threat to the external validity or the generalizability of the results.

Independent Variables

Based on the EADA surveys and the review of literature, the following factors were chosen for the analysis (a) the percentage distribution of expenses by gender; (b) the number of sports sponsored; (c) the profit/loss of women and men's basketball; (d) the total number of athletes and percentage by gender; (e) football profit/loss; (f) rankings in the 1996 Sears Directors Cup standings; (g) operating expenses of each gender; (h) recruiting expenses by gender; (i) percentage recruiting by gender; (j) revenue generated by gender; (k) scholarship aid by gender; (l) the average head coach's salary for male sports and (m) the average head coach's salary for female sports and their relationship to fiscally solvent programs. These were the variables measured by the Equity in Athletics

Disclosure Act. The 1995-96 Equity in Athletics Disclosure Act survey was most recent instrument available and was used to determine the effect of the selected independent variables on fiscal solvency.

Cohen (1977) recommended statistical criteria for selection of independent variables. In his text, Cohen explained how effect size was the most important determinant of power or required sample size of a study, but at the same time it was one of the least understood concepts in the area of statistical inference. Much of the confusion was brought about by the conflicting procedures that had been developed by other researchers. Cohen argued that the relationship between effect size, power, and sample size should be intuitively evident; the larger the effect size expected (with all other things being equal), the smaller the sample size necessary to detect differences. Therefore, the variables measured by the Equity in Athletics Disclosure Act were selected as independent variables because they were believed to be reasonable predictors of Division I-A fiscal solvency.

Dependent Variable

Fiscal solvency (Total Profit/Loss) constituted the measured dependent variable and was calculated by subtracting total expenses from total revenues.

Instrumentation

The 1995-96 Equity in Athletics Disclosure Act survey was used to collect data from the 112 Division I-A Football programs. Appendix B provides the entire questionnaire that was distributed to each participating institution. This questionnaire consisted of a series of four sections to be completed by each institution. These four

sections included: general information, varsity teams, overall athletic program, and an optional section.

Data Collection

This analysis was based on a data set comprised of information collected by the NCAA in compliance with the Equity in Athletics Disclosure Act for the 1995-96 fiscal year. An internet database provided all of the data obtained from the surveys. This six part series examined NCAA problems and possible solutions. Institution's that provided completed surveys were used. Data used in this study was collected and organized into tables which identified the different independent variables. The dependent measure in this study, fiscal solvency, was measured through the use of a mathematical model. Data was provided by all respondents from the population of 112 schools, although some institutions omitted information on a select group of variables.

Statistical Analysis

The mathematical models used to test if there were significant relationships between the variables measured by the Equity in Athletics Disclosure Act on the fiscal solvency of Division I-A athletic programs were analyzed with the use of the Statistical Analysis System (SAS) statistical computer program. Each hypothesis was tested at the .05 level of significance. An alpha level of .05 was the standard alpha level used in most educational studies. An alpha level of .05 indicated that if a random sample was drawn from the population, five times out of 100 would the observed results happen by chance. Multiple regression techniques were used to test the relationship of the independent variables with the dependent measure. To develop the full mathematical model, multiple

regression was used. One purpose of multiple regression was to predict or estimate the value of one variable from known or assumed values of other variables related to it (Younger, 1979, p.1-3).

Multiple regression was used in these analyses due to the continuous nature of the dependent variable, fiscal solvency. Multiple regression allows the testing of independent variables for individual significance with the dependent variable while controlling for the effects of all other variables in the model. This was possible since one property of multiple regression analysis is determining if an individual variable has a significant effect on the dependent variable while holding all other variables constant (Grace, 1996).

The model, $y = a + bx + e$ was selected in this study. The e (error) in this equation controlled for other factors which may have influenced the outcome, but were unknown to the researcher. The intercept of the y axis was represented by a and the slope was depicted by b. This mathematical model yielded a least squares regression line. The least squares model yields the line of best fit, according to Spiegel (Buchanan, 1997).

Chapter Summary

Division I-A athletic programs were on the whole, in the midst of difficult financial times. These financial dilemmas created situations that should have fiscal managers immediate attention. Relationships between the variables researched and the fiscal solvency of Division I-A athletic programs provided insight concerning factors that contributed to the deficit producing components of an individual program. Furthermore, the information revealed in this study may aid athletic leaders in identifying financial practices that will help create revenue producing athletic programs. The mathematical

models constructed in this study, combined with other analyses, may assist athletic leaders in the allocation of available resources.

CHAPTER 4
PRESENTATION OF DATA

Introduction

The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. There were thirteen research questions addressed in this study. All questions compared one of the independent predictor variables and the effect on the dependent measure, fiscal solvency.

Research Questions

Research question one examined in this study was whether there was a significant relationship between fiscal solvency and the percentage distribution of operating expenses by gender. The null hypothesis for this research question was that the percentage distribution of operating expenses by gender was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected and it was concluded that the percentage distribution of operating expenses by gender was not significantly related to the fiscal solvency of Division I-A athletic programs.

Research question two addressed whether there was a significant relationship between fiscal solvency and the number of sports sponsored by an institution. The null hypothesis for this research question was that the number of sports sponsored by an institution was not related to the fiscal solvency of Division I-A athletic programs. To

test for significance of the null, multiple regression techniques were performed. The number of teams sponsored ranged from Texas Christian's low of nine teams, to Ohio State's high of 32. In both mathematical models, the number of teams sponsored was not a significant predictor variable for profit or football profit. The null hypothesis failed to be rejected and it was concluded that the number of sports sponsored by an institution was not significantly related to the fiscal solvency of Division I-A athletic programs. The number of teams sponsored by Division I-A athletic programs are reported in Table 4-1.

Table 4-1

Number of Teams Sponsored by
Division I-A Athletic Programs

Number Sponsored	5-10	11-15	16-20	21-25	26+
Institutions	5	44	43	14	6

The number of athletic teams sponsored by Division I-A institutions has received tremendous notoriety the past decade. Specifically, regarding Title IX compliance. This was one of the three tests used to determine if an institution was meeting Title IX compliance.

Research question three researched in this study was whether there was a significant relationship between fiscal solvency and the profit/loss of women and men's basketball. The null hypothesis for this research question was that the profit/loss of

women and men's basketball was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis was rejected and it was concluded that the profit/loss of women and men's basketball significantly related to the fiscal solvency of Division I-A athletic programs. Men's basketball profit was one of four significant predictor variables in the mathematical model for profit. Profitable basketball programs for men's and women's teams were both significant predictor variables. Although there were more than 300 universities that sponsored men's basketball, only the 112 institutions sponsoring Division I-A football were analyzed. Useable data was collected from 104 (93%) schools. Consistent with the number of institutions (N=73) producing a profit in football, there were 76 men's basketball programs who were fiscally solvent. An additional 28 were deficit producing. The reported values are included in Tables 4-2 and 4-3 respectively. Presented in Table 4-2 are the top six revenue producing men's basketball programs.

Table 4-2

The Top Six Revenue Producing Men's Basketball Programs

Rank	Institution	Revenue (dollars)	Conference
1	Louisville	6,892,016	Conference USA
2	Arkansas	6,088,790	Southeastern
3	Indiana	5,459,838	Big Ten
4	North Carolina	5,402,901	Atlantic Coast
5	Arizona	5,284,083	Pacific Ten
6	Kentucky	4,738,863	Southeastern

Women's basketball profit was the only variable that was a significant predictor in both the profit and football profit mathematical models. Only four schools, BYU, Central Florida, Washington, and Texas Tech were profit producing, while 41 institutions lost more than $500,000. The profitable schools are identified in Table 4-3.

Table 4-3

Revenue Producing Division I-A
Women's Basketball Programs

Rank	Institution	Revenue (dollars)	Conference
1	Texas Tech	177,992	Big Twelve
2	Washington	164,096	Pacific Ten
3	Central Florida	71,656	Independent
4	BYU	52,658	Western Athletic

Research question four examined whether there was a significant relationship between fiscal solvency and the profit/loss of football. The null hypothesis for this research question was that an institution's football profit/loss was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis was rejected and it was concluded that the football profit/loss significantly related to the fiscal solvency of Division I-A athletic programs. Precisely, if a Division I-A athletic program was producing a profit, there was a significant probability that the football program was a pivotal producer of revenue.

Of the 112 football programs analyzed, 65% (N=73), were profitable. Less than half, 48% (N=54) of all schools athletic programs were profit producing. Profitability was determined by subtracting expenses from revenues for both the athletic and football programs. The profitability for both football and overall athletic programs are presented in Table 4-4.

Table 4-4

Profitability of Division I-A Athletic and Football Programs

PROGRAMS	YES	NO	TOTAL SCHOOLS
ATHLETIC	54	58	112
FOOTBALL	73	39	112

Research question five analyzed in this study was whether there was a significant relationship between fiscal solvency and an institutions ranking in the 1996 Sears Directors Cup standings. The null hypothesis for this research question was that an institution's ranking in the Sears Cup was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected it was concluded that rankings in the 1996 Sears Directors Cup standings were not significantly related to the fiscal solvency of Division I-A athletic programs. The Sears Cup rankings and profitability of Division I-A athletic programs are presented in Table 4-5.

Provided in Table 4-5 is a list of all 112 Division I-A athletic programs, their ranking in the Sears Cup, and a number 1 (profit) or 0 (nonprofit) indicating financial solvency for both the football and overall athletic program.

Table 4-5

Sears Cup Rankings and Fiscal
Solvency for Division I-A Football
and Overall Athletic Programs

	Institution	Sears Rank	Overall Profit	Football Profit
1.	Stanford	1	0	1
2.	UCLA	2	0	1
3.	Florida	3	1	1
4.	Texas	4	0	1
5.	Michigan	5	0	1
6.	North Carolina	6	1	1
7.	Arizona	7	1	1
8.	Nebraska	8	1	1
9.	Penn St.	9	1	1
10.	Southern California	10	0	1
11.	Georgia	11	1	1
12.	Notre Dame	12	1	1
13.	Tennessee	13	0	1
14.	Auburn	14	1	1
15.	SMU	15	0	0
16.	LSU	16	1	1
17.	Ohio St.	17	1	1
18.	Wisconsin	18	1	1
19.	Virginia	19	0	1
20.	Texas A & M	20	1	1
21.	Arizona St.	21	1	1
22.	Minnesota	22	1	1
23.	Florida St.	24	1	1
24.	Colorado	25	1	1
25.	Ohio St.	26	0	1
26.	Clemson	27	1	1

Table 4-5--continued

	Institution	Sears Rank	Overall Profit	Football Profit
27.	Arkansas	28	1	1
28.	Washington	29	1	1
29.	Cal Berkeley	30	0	1
30.	Kansas	31	1	1
31.	Kentucky	32	1	1
32.	BYU	33	1	1
33.	North Carolina St.	33	1	1
34.	Iowa	35	1	1
35.	Maryland	36	1	1
36.	Indiana	37	1	1
37.	Alabama	38	0	1
38.	Duke	39	0	1
39.	Iowa St.	40	0	1
40.	Michigan St.	41	0	0
41.	South Carolina	42	1	1
42.	New Mexico	43	1	0
43.	Air Force	45	0	1
44.	Northwestern	46	0	1
45.	Texas Tech	47	1	1
46.	Oregon	48	1	1
47.	Cal St. Fresno	49	0	1
48.	Wake Forest	50	1	1
49.	Oklahoma	51	0	1
50.	Syracuse	52	0	0
51.	Miami, FL	56	0	1
52.	Illinois	58	1	1
53.	Utah	59	0	1
54.	Vanderbilt	61	0	1
55.	West Virginia	63	0	1
56.	Georgia Tech	66	0	0
57.	Purdue	67	1	1
58.	Hawaii	68	1	1
59.	Oregon St.	69	0	1
60.	San Jose St.	71	0	1
61.	Kansas St.	72	1	1
62.	Texas Christian	73	0	1
63.	Mississippi	75	0	1

Table 4-5--continued

	Institution	Sears Rank	Overall Profit	Football Profit
64.	Pittsburgh	76	0	0
65.	UTEP	83	1	1
66.	UNLV	84	0	0
67.	Temple	87	0	0
68.	Rice	88	1	1
69.	Boise St.	89	0	0
70.	Virginia	91	1	1
71.	Central Florida	93	1	0
72.	Southwestern Louisiana	96	1	0
73.	Navy	97	1	1
74.	Kent St.	98	0	0
75.	Boston College	100	0	0
76.	Miami, OH	104	0	0
77.	Mississippi St.	106	0	1
78.	Tulsa	109	0	0
79.	Colorado St.	110	1	1
80.	Cincinnati	112	0	0
81.	Nevada	113	1	1
82.	Washington St.	114	1	1
83.	Eastern Michigan	119	0	0
84.	Baylor	120	0	1
85.	Ball St.	124	1	0
86.	Louisville	126	1	1
87.	Wyoming	128	0	0
88.	Idaho	129	0	0
89.	Rutgers	131	0	1
90.	Missouri	133	1	1
91.	Marshall	135	1	0
92.	Bowling Green	137	1	0
93.	Houston	140	0	0
94.	Western Michigan	141	0	0
95.	New Mexico	143	1	0
96.	Toledo	145	0	0
97.	Army	147	0	0
98.	Central Michigan	148	0	0
99.	San Diego St.	149	1	1

Table 4-5--continued

	Institution	Sears Rank	Overall Profit	Football Profit
100.	Alabama Birmingham	152	0	0
101.	Memphis	154	0	0
102.	Northern Illinois	159	0	0
103.	Louisiana Tech	165	0	0
104.	Tulane	169	0	0
105.	Utah St.	176	0	0
106.	East Carolina	183	1	0
107.	Southern Mississippi	186	1	1
108.	NE Louisiana	195	0	1
109.	Ohio	203	0	0
110.	Akron	208	1	0
111.	Arkansas St.	208	0	0
112.	North Texas	208	0	0

Seven institutions produced a profit despite their football program losing money. These included: New Mexico, Central Florida, Southwestern Louisiana, Ball St., Marshall, East Carolina, Marshall, and Akron.

Research question six examined whether there was a relationship between fiscal solvency and the total number of athletes and percentage by gender. The null hypothesis for this research question was that the total number of athletes and percentage by gender was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis was rejected it was concluded that the total number of athletes and percentage

by gender was significantly related to the fiscal solvency of Division I-A athletic programs.

Research question seven examined whether there was a relationship between fiscal solvency and the operating expenses of each gender. The null hypothesis for this research question was that the operating expenses of each gender was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected and it was concluded that the operating expenses of each gender was not related to the fiscal solvency of Division I-A athletic programs.

Research question eight answered in this study was whether there was a relationship between fiscal solvency and the recruiting expenses by gender. The null hypothesis for this research question was that the recruiting expenses by gender was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis was rejected and it was concluded that the recruiting expenses by gender was significantly related to the fiscal solvency of Division I-A athletic programs. Specifically, the recruiting expenses allocated to female athletes significantly influenced a Division I-A athletic program's financial profitability. This relationship demonstrated a negative inverse correlation. That is, as the amount of money allocated for the recruitment of female student athletes increased, the likelihood of an athletic program's profitability decreased.

Research question nine examined in this study was whether there was a relationship between fiscal solvency and the percentage of recruiting expenses by gender. The null hypothesis for this research question was that the percentage of recruiting expenses by gender was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected and it was concluded that the percentage of recruiting expenses by gender was not significantly related to the fiscal solvency of Division I-A athletic programs.

Research question ten examined whether there was a relationship between fiscal solvency and the revenue generated by gender. Women's revenues are reported in Table 4-6.

Table 4-6

Women's Revenue

Revenue (Dollars)	Number of Institutions
< 10,000	10
10,000 - 100,000	33
101,000 - 500,000	30
501,000 - 1,000,000	9
1,000,001 - 1,500,000	6
1,500,001 - 2,000,000	3
2,000,001 - 3,000,000	7
3,000,001 >	4
501,000 - 1,000,000	9
1,000,001 - 1,500,000	6
1,500,001 - 2,000,000	3
2,000,001 - 3,000,000	7
3,000,001 >	4

The null hypothesis for this research question was that the revenue generated by gender was not related to the fiscal solvency of Division I-A athletic programs. To test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected and it was concluded that the revenue generated by gender was not significantly related to the fiscal solvency of Division I-A athletic programs. Over 58% of the 112 institutions accumulated revenues between $10,000 dollars and $500,000 dollars. The University of California at Berkeley, Stanford, Florida State, and Ohio State, were the four institutions producing more than $3,000,000 in women's revenue.

Research question eleven examined whether there was a relationship between fiscal solvency and the scholarship aid by gender. To address this question, a null hypothesis was developed and to test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected and it was concluded that the scholarship aid by gender was not significantly related to the fiscal solvency of Division I-A athletic programs.

Research question twelve examined whether there was a relationship between fiscal solvency and the average head coach's salary for male sports. To address this question, a null hypothesis was developed and to test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected and it was concluded that the average head coach's salary for male sports was not significantly

related to the fiscal solvency of Division I-A athletic programs. The average head coaches salary for male sports are reported in Table 4-7.

Average salaries paid to head coaches for both men's and women's sports were both non significant predictor variables in the mathematical models. However, the average salaries were different based on the gender of the athletic team. That is, coaches of male teams earned more on average than coaches of female teams. A point of clarification warrants an additional explanation. These numbers do not signify that male coaches earned more than female coaches, only that individuals coaching male athletic teams on average were paid more dollars than coaches of female athletes.

Table 4-7

Average Head Coaches Salary
for Male Sports

Salary (Dollars)	Number of Institutions*
<50,000	22
50,001 - 65,000	37
65,001 - 80,000	33
80,001 - 100,000	13
100,001 >	6

Over 62% (N=70) of the head coaches average salaries were between $50,000 and $80,000. The six institutions paying their men's teams head coach average salary more than $100,000 included the University of Florida, the University of Arizona, the University of Tennessee, Tulane University, Texas Christian University, and the

University of Iowa. The University of Florida compensated men's coaches with salaries greater than $200,000 dollars. Average head coaches salary for fiscal year 1996-96 was $225,769 dollars.

Research question thirteen examined whether there was a relationship between fiscal solvency and the average head coach's salary for female sports was analyzed. To address this question, a null hypothesis was developed and to test for significance of the null, multiple regression techniques were performed. The null hypothesis failed to be rejected and it was concluded that the average head coach's salary for female sports was not significantly related to the fiscal solvency of Division I-A athletic programs. The average head coaches salary for female sports are reported in Table 4-8.

Table 4-8

Average Head Coaches Salary
for Female Sports

Salary (Dollars)	Number of Institutions*
< 30,000	16
30,001 - 45,000	56
45,001 - 50,000	20
50,001 >	18

Note: 2 schools had missing data

Over 50% (N=56) of head coaches of women's team earned an average salary ranging between $30,001 and $45,000 dollars. Four institutions compensated their coaches with salaries over $60,000. The University of Texas, Nevada Las Vegas, the University of

Tennessee, and the University of Florida. Florida's head coaches were compensated with an average salary of $81,360 dollars. The University of Florida allocated more money on average for coaches of both men's and women's team than any other institution competing in Division I-A athletics.

Additional Analyses

The average revenue generated by Division I-A athletic programs in 1996 was $13,711,291 dollars with the maximum revenue generated by the University of Florida totaling $36,897,614 dollars. The University of Michigan dispersed the largest number of operating dollars among Division I-A athletic programs spending $36,302,000 dollars while the University of Florida allocated $35,209,334 dollars. Division I-A athletic programs on average budgeted 74.5% of their expenses on male athletes.

Within Division I-A football, 73 programs produced a profit, with the average earnings just under $3,000,000. The University of Washington's football program produced $20,322,687 in revenue to lead all institutions. However, when football profit was removed as a revenue source, Division I-A athletic programs lost an average of $2,744,791. Despite the misconception that big time collegiate athletic programs are revenue producing, only 54 of the 112 Division I-A athletic programs were fiscally solvent. Average profit of these universities was $250,497 dollars. Pennsylvania State University produced the largest capital gain of $18,730,905 dollars.

Typically, Division I-A athletic programs had 460 student athletes comprising 16 teams. Males accounted for 65% of all athletes and received 75% of the money appropriated for recruiting expenses. These male athletes easily produced the majority of

revenues. Men's programs averaged $9,721,496 in revenues compared to women's programs earning $576,707 dollars. Men's basketball teams earned an average profit of $1,305,789, compared to an average deficit of $447,261 for women's basketball teams. The means and standard deviations for the 25 predictor variables are reported in Table 4-9. See appendix C for a explanation of these variables.

Table 4-9

Means and Standard Deviations for
Division I-A Athletic Programs

Variable	N	Mean	Standard Deviation
REV (Dollars)	105	13,711,291	8737083
EXP (Dollars)	112	12,779,944	8313148
PROFIT (Dollars)	105	250,497	3517915
NONFBPR (Dollars)	103	-2,744,791	4003045
PEXPMAL (Percent)	112	75	8
PEXPFEM (Percent)	112	25	8
TEAMS	112	16.80	4.55
FEMBBPR (Dollars)	104	- 447,261	198670
FBPR (Dollars)	104	2,934,441	4758585
MENBBPR (Dollars)	104	1,305,789	1688835
SEARS	112	77	56
TOTATH	112	460	151
PMALE (Percent)	112	66	6
PFEMALE (Percent)	112	34	6
OPEXMAL (Dollars)	112	2,420,381	2032076
OPEXFEM (Dollars)	112	673,680	479431
RCEXMAL (Dollars)	112	261,157	130506
PREEXMA (Percent)	112	75	6.9
PREEXFE (Percent)	112	25	6.8
MREVE (Dollars)	104	9,721,496	7480952
WREVE (Dollars)	103	576,707	908239
AIDMAL (Dollars)	108	1,634,437	774377
AIDFEM (Dollars)	108	861,234	431204
AVGHCM (Dollars)	112	67,147	26092
AVGHCF (Dollars)	110	41,854	10040

The significant correlations of the 22 predictor variables and their relationship with the dependent measure, fiscal solvency are displayed in Table 4-10.

Table 4-10

Correlational Analyses of
Significant Predictor Variables

Predictor Variable	Correlation
Men's Revenue	.4364
Revenue	.3698
Non-Football Profit	.2010
Percent Expenses Male	-.2320
Football Profit	.5680
Men's Basketball Profit	.2484
Sears Cup Rank	-.2348
Total Athletes	.2042
Recruiting Expenses Females	.1934

Nine predictor variables were significant at the .05 level. Revenue, men's revenue, non-football profit, the percent expenses for male athletes, football profit, men's basketball profit, sears cup ranking, total athletes, and the recruiting expenses allocated for female athletes were all significant.

Multiple Regression was used to analyze relationships between the independent predictors and their effect on the dependent measure, fiscal solvency. Significant independent predictor variables for the profit model were football profit, men's and women's basketball profit, and the recruiting expenses for female athletes. Specifically, football revenue, men's and women's basketball profit, and the recruiting expenses

distributed to female athletes determined if an athletic department had the ability to conduct an overall athletic program that was financially profit producing. Results are included in Table 4-11.

Table 4-11

Probability Levels of Independent Predictor Variables with their Relationship on Profit

Variable	Parameter Estimate	T for Ho:	Prob > | t |
Rev	0.016441	0.197	0.8444
Pexmale	-73482	-1.381	0.1715
Teams	-119600	-0.787	0.4335
Fembbpr	3.278742	2.013	0.0477*
Fbpr	0.427939	3.586	0.0006*
Menbbpr	0.580325	2.754	0.0074*
Sears	-79.1070	-0.010	0.9912
Totath	3860.291854	0.886	0.3785
Pmale	15173	0.276	0.7832
Opexmal	0.201315	0.597	0.5526
Opexfem	-0.728200	-0.562	0.5757
Rcexmal	2.948933	0.600	0.5500
Rcexfem	-31.824398	-2.113	0.0379*
Preexma	-40652	-0.677	0.5002
Mreve	0.011192	0.202	0.8403
Wreve	0.530136	1.597	0.1146
Aidmal	0.357964	0.404	0.6875
Aidfem	-1.914692	-1.239	0.2191
Avghcme	-26.277896	-1.774	0.0801
Avghcfe	44.024938	0.987	0.3270

*Significant at the .05 level of significance

Of the 112 Division I-A institutions competing in football, seventy three produced a profit. Only seven institutions generated an overall profit in their overall athletic program, if football was deficit producing.

Football profit was the strongest predictor. This is consistent with the findings that revealed only seven institutions were able to produce an overall athletic program profit while operating a deficit producing football program. Implementing the parameter estimates from Table 4-11, the first mathematical model could be represented as follows:

$$\text{PROFIT} = 9561946 + 0.4279\text{FBPR} + 0.5803\text{MENBBPR} + 3.2787\text{FEMBBPR} + -31.8243\text{RCEXFEM}.$$

Conceptually, this model would be:

PROFIT = Football Profit + Men's Basketball Profit + Women's Basketball Profit - Recruiting Expenses for Female Athletes.

Therefore, significant predictor variables of profit with this set of independent variables while controlling the effects of all others variables were the profit generated by an institution's football program, basketball revenue generated by both genders, and the money allocated to the recruitment of female athletes.

The coefficient of determination for the first mathematical model resulted in a value of .5002. The coefficient of determination can be interpreted as the proportion of variability of one variable (X) that can be accounted for by knowing another variable (Y). That is, the coefficient of determination is the proportion of variance in X predictable from Y. The mathematical model PROFIT's coefficient of determination value of .5002 indicated that more than half of the variability in X was accounted for by the variability in Y. Thus, it was concluded that these four variables were the only predictor variables that had a statistically significant relationship with the fiscal solvency of Division I-A athletic programs while controlling for all other variables.

Parameter estimates of the second model, football profit are presented in

Table 4-12. This model was selected following the analysis of the first mathematical model which identified the significant predictor variables and their relationship with profit. Football profit proved to be the strongest significant predictor of profit. That is, if football profit was strongly related to profit, identifying the contributing factors that permitted an institutions football program to be revenue producing warranted further investigation.

Table 4-12

Probability Levels of Independent Predictor Variables with their Relationship on Football Profit

Variable	| T |
Revenue	0.0001*
Percent Expenses Male	0.0705
Teams	0.8642
Female Basketball Profit	0.0111*
Men's Basketball Profit	0.3415
Sears	0.6026
Total Athletes	0.6176
Percent Male Athletes	0.0142*
Operating Expenses Males	0.2051
Operating Expenses Females	0.8548
Recruiting Expenses Males	0.7965
Recruiting Expenses Females	0.5777
Percent Recruiting Expenses Male	0.4170
Men's Revenue	0.9265
Women's Revenue	0.2411
Financial Aid Males	0.7779
Financial Aid Females	0.7670
Average Head Coaches Salary Males	0.0812
Average Head Coaches Salary Females	0.5031

* Significant at the .05 alpha level.

In this model, three predictor variables were significant. These included revenue, women's basketball profit, and the percentage of male athletes competing at the institution.

The coefficient of determination for the second mathematical model resulted in a value of .7933. The mathematical model FBPROFIT's value of .7933 indicated that almost 80% of the variability in X was accounted for by the variability in Y. Only women's basketball profit was significant in both models. Two variables which were significant predictors in the football model, revenue and percentage of male athletes, failed to reach significance in the profit model. No significance was found when football profit was compared to rankings in the Sears Cup.

The model for football profit was: FBPROFIT = -325920 + 0.4753REV + 3.930FEMBBPR + 12824PMALE

Conceptually, this model would be: Football Profit = Revenue + Female Basketball Profit + Percentage of Male Athletes

The top ten profitable Division I-A football programs for fiscal year 1995-96 are reported in Table 4-13. Similar to the results in Table 4-2, the Southeastern conference was well represented in Table 4-13. The Southeastern conference had five top ten teams, the Big Ten conference had two institutions in the top ten, while the Big Twelve conference, Pacific Ten conference, and an independent each were represented once. Both the Big East Conference comprised of eight institutions, and the Atlantic Coast conference including nine members, failed to sponsor a Division I-A football program that were ranked among the top ten revenue producing institutions.

Table 4-13

The Top Ten Revenue
Producing Institutions in Division I-A
Football and their Conference Affiliation.

	Institution	Revenue (dollars)	Conference
1.	Washington	20,322,687	Pacific Ten
2.	Florida	19,824,041	Southeastern
3.	Auburn	16,814,690	Southeastern
4.	Penn St.	15,512,024	Big Ten
5.	Georgia	14,299,294	Southeastern
6.	Michigan	12,094,122	Big Ten
7.	Alabama	12,058,790	Southeastern
8.	Notre Dame	11,562,107	Independent
9.	Tennessee	11,288,349	Southeastern
10.	Texas A & M	10,429,432	Big Twelve

The ability to generate revenue was institution specific. That is, revenue totals ranged from Idaho's low of $608,066 to the incredible $36,897,614 generated by the University of Florida. The revenue categories for Division I-A athletic programs are reported in Table 4-14.

Table 4-14

Total Revenue Generated by
Division I-A Athletic Programs

Revenue (millions):	<1	1-3	3-5	6-9	10-14	15-20	21-25	26-30	31+
Number of Schools:	1	8	14	21	20	21	11	4	5

Note: 7 institutions had missing data.

The only Division I-A athletic program failing to generate a million dollars in revenue was the University of Idaho as they only accumulated $608,066 dollars. Over 55% (N=62) of Division I-A athletic programs produced incomes ranging between 6 and 20 million dollars for fiscal year 1995-96. Five institutions generated more than 31 million dollars in athletic income. These are identified in Table 4-15.

Table 4-15

Division I-A Athletic Programs
Generating Greater than 31 Million Dollars

Institution	Revenue (dollars)	Conference
Florida	36,897,614	Southeastern
Michigan	35,887,000	Big Ten
Ohio St.	34,725,999	Big Ten
Nebraska	32,866,902	Big Twelve
Tennessee	32,254,663	Southeastern

Both the Southeastern and Big Ten Conferences had two teams in the top revenue producing athletic programs. The University of Florida and the University of Michigan respectively produced the top two revenue totals for Division I-A athletic programs. A member of the Southeastern Conference, the University of Florida edged the Big Ten's University of Michigan by $1,010,614 dollars.

Comparable to the diverse revenue totals earned by Division I-A athletic programs, expenses distributed for the operation of these programs resulted in various

outcomes. Institutions producing greater revenue demonstrated a trend to spend more dollars. Expenses were calculated by the expenditures for lodging, meals, transportation, officials, uniforms, equipment, salaries, grant-in-aid, contract game settlements paid to opposing teams, and other disbursements required for the current operation of the athletic program. Expenses are summarized in Table 4-16.

Table 4-16

Total Expenses Dispersed by
Division I-A Athletic Programs

Expenses in millions:	<1	1-3	4-9	10-15	16-20	21-25	26-30	32+
Number of Schools:	3	7	42	22	22	9	2	5

Over 75% (N=86) of Division I-A athletic programs spent between 4 and 20 million dollars to subsidize athletics, while 37% (N=42) of the programs cost between four and nine million dollars to operate. Three institutions reported expenses less than a million dollars. These included the University of Texas El-Paso, Boise St., and the University of East Carolina. Vanderbilt University was the only institution in this category that exhibited a profit with either their football or overall athletic program. Their football program was profitable despite the limited number of dollars allocated. Five institutions dispersed 32 million dollars or more operating a Division I-A athletic program for fiscal year 1995-96. The five institutions expending 32 million dollars or more conducting a Division I-A athletic program are presented in Table 4-17. Comparing

Tables 4-15 and Table 4-17 confirmed that the top revenue producing schools also spent more dollars.

Table 4-17

Division I-A Athletic Programs Appropriating Greater than 32 Million Dollars

Institution	Expenses(dollars)	Conference
Michigan	36,302,000	Big Ten
Florida	35,209,334	Southeastern
Ohio St.	34,481,304	Big Ten
Tennessee	32,932,210	Southeastern
Nebraska	32,300,402	Big Twelve

The University of Florida produced more revenue and was second among Division I-A athletic programs in expenditures. The University of Michigan was the leader in expenses, but finished second behind Florida in the production of revenue.

Profit was calculated by subtracting total expenses from revenues. The mathematical model predicting profit included four independent significant variables. These were football profit, men's basketball revenue, women's basketball revenue, and recruiting expenses allocated to female athletes. Specifically, a closer examination of the disparity between fiscally solvent athletic programs with those which were deficit producing was warranted. Presented in Table 4-18 are the profits generated or deficits amassed by Division I-A athletic programs. Of the 105 institutions with complete data, 54 institutions produced a profit, 47 institutions lost monies, and four other universities demonstrated a balanced budget.

Table 4-18

Profit/Deficit Ranges of Division I-A Athletic Programs

Profit/Loss (Dollars)	Number of Schools*
< (3,000,000)	13
(1,000,000 - 2,999,999)	12
(1 - 999,999)	22
Even	4
1 - 200,000	15
200,001 - 700,000	16
700,001 - 2,000,000	11
2,300,000 - 7,500,000	9
10,000,000 >	3

* Note: 7 institutions had missing data.

Identifying the relationship between fiscal solvency and conference affiliation of the top 50 universities in the Sears Cup ranking demonstrated financial trends among Division I-A athletic programs. Georgia Tech was the only school that competed in the Atlantic Coast Conference (ACC) which was not ranked in the top 50, although they finished at number 56. Of the nine member conference, over 88% were ranked in the top 50. This represented the highest percentage of any conference.

The Big Ten Conference with 9 out of 11 institutions ranked (81.8%) was second. The Pacific Ten was represented with eight schools (80%), while both the Big Twelve and Southeastern Conferences had nine universities (75%) respectively ranked in the Sears Cup top 50. Syracuse University was the only member of the Big East Conference ranked in the top 50 and that was in the 50th position. Finally, the University of Notre

Dame was the lone independent out of a possible seven that entered the rankings at number 12. Furthermore, independents were well represented near the bottom of the rankings. Specifically, three schools out of a possible seven (43%) were ranked in final 12 positions in the Sears Cup rankings. These are presented in Table 4-19.

Table 4-19

Top 50 Universities Ranked in the Sears Cup and Conference Affiliation

Conference Affiliation	Number of Schools	Number of Schools in Top 50
Big Twelve	12	9
Big Ten	11	9
Southeastern	12	9
Pacific Ten	10	8
Atlantic Coast	9	8
Western Athletic	16	5
Big East	8	1
Independents	7	1

Chapter Summary

The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. Thirteen research questions were assessed in this study. In addition to answering those question, this chapter reported results from the data analysis. All questions compared one of the independent predictor variables and the effect on the dependent measure, fiscal solvency. Two mathematical models were

developed as a result. One model identified the significant predictor variables for profit, while the other model identified the significant predictor variables for football profit.

In the first mathematical model PROFIT, significant independent predictor variables were football profit, men's and women's basketball profit, and the recruiting expenses for female athletes. Football profit was the strongest predictor. This is consistent with the findings that revealed only seven institutions were able to produce an overall athletic program profit while operating a deficit producing football program. The first mathematical model could be represented as follows:

$$\text{PROFIT} = 9561946 + 0.4279\text{FBPR} + 0.5803\text{MENBBPR} + 3.2787\text{FEMBBPR} + -31.8243\text{RCEXFEM}.$$

Conceptually, this model would be:

$$\text{PROFIT} = \text{FBPR} + \text{MENBBPR} + \text{FEMBBPR} + \text{RCEXFEM}.$$

Significant predictor variables of profit with this set of independent variables while controlling the effects of all others variables included the profit generated by an institution's football program, revenue generated by basketball for both genders and the money allocated to the recruitment of female athletes. Fifty eight institutions were profit producing, while 54 institutions suffered a loss.

A second mathematical model was constructed to assess football profit. In this model, three predictor variables were significant. These included revenue, women's basketball profit, and percent male athletes. Only women's basketball profit was a significant predictor variable in both models. Two variables, revenue and percent male athletes that were significant in the football model failed to reach significance in the

profit model. No significance was found when football profit was compared to rankings in the Sears Cup. The model for football profit was:

FBPROFIT = -325920 + 0.4753REV + 3.930FEMBBPR + 12824PMALE

Conceptually, this model would be:

FBPROFIT = REV + FEMBBPR + PMALE

Within Division I-A football, 73 programs produced a profit, with the average earnings just under $3,000,000. The University of Washington's football program produced $20,322,687 dollars in revenue to lead all institutions. Seventy three of the 112 Division I-A institutions sponsoring football were profit producing. Seven institutions were able to produce a profit despite their football program losing money. These included: New Mexico, Central Florida, Southwestern Louisiana, Ball St., Marshall, East Carolina, Marshall, and Akron. However, when football profit was removed as a revenue source, Division I-A athletic programs lost an average of $2,744,791 dollars. Despite the misconception that big time collegiate athletic programs are revenue producing, only 54 of the 112 Division I-A athletic programs were fiscally solvent. Average profit of these universities was $250,497 dollars.

The average revenue generated by Division I-A athletic programs in 1996 was $13,711,291 dollars, with the maximum revenue generated by the University of Florida totaling $36,897,614. The University of Michigan dispersed the largest number of operating dollars among Division I-A athletic program spending $36,302,000, while the University of Florida allocated $35,209334. Division I-A athletic programs on average budgeted 74.5% of their expenses for male athletes.

Men's basketball profit was one of four significant predictor variables in the mathematical model for profit. Although there were more than 300 universities that sponsored men's basketball, only the 112 institutions sponsoring football were analyzed. Useable data was collected from 104 (93%) schools. Consistent with the number of institutions (N=73) producing a profit in football, there were 76 men's basketball programs which were fiscally solvent. Women's basketball profit was the only predictor variable that was significant in both the profit and football profit mathematical models. Only four schools, BYU, Central Florida, Washington, and Texas Tech were profit producing, while 41 institutions lost more than $500,000 dollars.

Over 75% of Division I-A athletic programs spent between 4 and 20 million dollars to subsidize athletics, while 37% of the programs cost between four and nine million dollars to operate. The University of Florida produced more revenue and was second among Division I-A athletic programs in expenditures. The University of Michigan was the leader in expenses, but finished second behind Florida in revenue production. Analogous to the diverse revenues generated and expenses needed to operate a Division I-A athletic program, the number of teams sponsored ranged from Texas Christian's low of nine teams, to Ohio State's high of 32. In both mathematical models, the number of teams sponsored was not a significant predictor variable for profit or football profit. The financial solvency of Division I-A athletic programs depended significantly on the ability of the football program to be revenue producing. Institutions that did not receive revenue from their football program encountered difficult times producing an overall athletic program that was financially profitable.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. Thirteen research questions were assessed in this study. All questions compared one of the independent predictor variables and the effect on the dependent measure, fiscal solvency. The research questions that provided the base for this study were as follows:

1. Was there a relationship between fiscal solvency and the percentage distribution of expenses by gender?
2. Was there a relationship between fiscal solvency and the number of sports sponsored by an institution?
3. Was there a relationship between fiscal solvency the profit/loss of women and men's basketball?
4. Was there a relationship between fiscal solvency and football profit/loss?
5. Was there a relationship between fiscal solvency and an universities ranking in the 1996 Sears Directors Cup standings?
6. Was there a relationship between fiscal solvency and total number of athletes and percentage by gender?

7. Was there a relationship between fiscal solvency and the operating expenses of each gender?
8. Was there a relationship between fiscal solvency and the recruiting expenses by gender?
9. Was there a relationship between fiscal solvency and the percentage of recruiting expenses by gender?
10. Was there a relationship between fiscal solvency and the revenue generated by gender?
11. Was there a relationship between fiscal solvency and the scholarship aid by gender?
12. Was there a relationship between fiscal solvency and the average head coach's salary for male sports?
13. Was there a relationship between fiscal solvency and the average head coach's salary for female sports?

The first mathematical model measured 23 predictor variables and their relationship with the dependent measure, profit. Profitability was assessed by subtracting total expenses from total revenues. Predictor variables for this model included REV, EXP, PROFIT, NONFBPR, PEXPMAL, TEAMS, FEMBBPR, FBPR, MENBBPR, SEARS, TOTATH, PMALE, OPEXMAL, OPEXFEM, RCEXMAL, RECEXFEM, PREEXMA, MREVE, WREVE, AIDMAL, AIDFEM, AVGHCME, and AVGHCFE. See Appendix C for definitions of these predictor variables. These variables were

reported by Division I-A athletic programs completing the Equity in Athletics Disclosure Act.

The second mathematical model analyzed the same 23 predictor variables with the dependent measure, football profit. This model was designed to test for significant relationships between the independent variables and their relationship with football profit. Both mathematical models were analyzed through the use of multiple regression techniques with the Statistical Analysis System (SAS) and the alpha level was set at .05.

Discussion of the First Mathematical Model

Performing a multiple regression analysis on the first model PROFIT, resulted in the identification of four significant predictor variables which contributed to a Division I-A athletic program's position of fiscal solvency. These four factors were FEMBBPR, FBPR, MENSBBPR, and RCEXFEM. The model for PROFIT was:

$$\text{PROFIT} = 9561946 + 0.4279\text{FBPR} + 0.5803\text{MENBBPR} + 3.2787\text{FEMBBPR} - 31.8243\text{RCEXFEM}.$$

The mathematical model PROFIT's coefficient of determination value of .5002 indicated that more than half of the variability in profit was accounted for by the predictor variables.

As expected, football profit was a strong predictor of fiscal solvency. Revenue generated from ticket sales, television appearances, and bowl games significantly contributed to an institutions financial solvency in the sport of football. Seventy three institutions had football programs that were financially profitable. On average, Division

I-A football programs produced a profit of $2,934,441 dollars. Fulks (1996) reported that the average Division I-A collegiate athletic program for fiscal year 1995 generated 66% of their revenue from football. Only seven institutions demonstrated an overall profit in their athletic program when the football program produced a deficit. Leaders of Division I-A athletic programs were faced with difficult dilemmas regarding football. Scholarship reductions had already been imposed, with future discussion of additional cutbacks already in progress. However, before additional reductions are made, administrators may need to consider the ramifications of this action. Specifically, can Division I-A football continue to finance other non-revenue sponsored sports resulting from legislative change? Although additional scholarship reductions would alleviate a portion of the expenses attributed to football, the quality of product on the playing field may deteriorate. As a result, football generated revenues could be reduced which would ultimately effect the financial status of Division I-A athletic programs.

Profits generated from men's and women's basketball programs also resulted in significant predictors in the first model. Of the 112 institutions analyzed in this research study, 76 institutions competing in men's basketball were profitable, with the typical program generating profits of $1,305,789 dollars. Pastore (1997) reported that Division I-A institutions received more than 90% of their revenues from football and men's basketball. Monies allocated from the NCAA basketball tournament were pivotal. That is, an institution receiving a bid to the 64 team tournament field automatically was awarded additional compensation. Furthermore, even those sponsored Division I-A not participating in the NCAA basketball tournament received a portion of the tournaments

revenues. Historically, Division I-A athletic programs struggled to concurrently excel in football and men's basketball. Institutions including Michigan, UCLA, and Syracuse have established success in football and men's basketball simultaneously, although this interpretation is highly debatable. Whether these institutions or others can successfully maintain or establish athletic programs that can consistently win in football and men's basketball simultaneously will be of interest to leaders of division I-A athletic programs.

Women's basketball profit was another significant predictor variable in the first mathematical model. Although these basketball programs were not as financially solvent as men's programs, attempts to increase the number of profitable programs appeared to be fortuitous. Specifically, only four institutions, BYU, Central Florida, Texas Tech, and Washington were profit producing, while 41 institutions lost more than $500,000 dollars.

While efforts to operate a women's basketball program that is financially self supporting may appear unrealistic, leaders of Division I-A athletic program could develop strategies to reduce the magnitude of their deficits. Implementing innovative business strategies, enhancing the marketing of women's basketball, and developing plans to increase television revenue could result in the number of profitable women's basketball programs. With two professional women's basketball leagues established within the past three years, the development of women's basketball at all levels will have a myriad of opportunities.

The final significant predictor variable in the first mathematical model was the recruiting expenses allocated to female athletes. This predictor variable resulted in an inverse relationship with PROFIT. That is, spending fewer dollars on the recruitment of

female Division I-A athletes, significantly contributed to the athletic program's overall profitability. Limiting the dollars allocated for non-revenue producing sports could result in additional profitable programs. Although a financial reduction of available dollars allocated for women's athletics may increase the number of financially solvent programs, other mitigating factors could result. These include, but are not limited to, the quality of play, an institutions legal obligation to comply with Title IX stipulations, and ethical concerns are a list of the possible ramifications resulting from a reduction of available dollars for female athletes. Furthermore, administrative decisions to reduce funding for female athletics would create difficulties for women's basketball programs to take advantage of the aforementioned opportunities to increase revenue.

Discussion of the Second Mathematical Model

Performing a multiple regression analysis on the second model, football profit resulted in the identification of three significant predictor variables contributing to a Division I-A athletic program's position of operating a profitable football program. The decision to develop another mathematical model specific to football profit was supported by the strength of the relationship between football profit and overall profit found in the first mathematical model. The model for football profit was:

$$FBPROFIT = -325920 + 0.4753REV + 3.930FEMBBPR + 12824PMALE$$

Conceptually, this model would be: FBPROFIT = Revenue + Female basketball profit + Percentage of male athletes.

Revenue, female basketball profit, and the percentage of male athletes were the predictor variables statistically significant in the football profit model. As expected, revenue resulted in the strongest prediction. Typically, Division I-A programs accrued $13,711,291 dollars in revenue, with football revenue providing a majority of these dollars. The coefficient of determination for the second mathematical model resulted in a value of .7933. The mathematical model FBPROFIT's value of .7933 indicated that almost 80% of the variability in X was accounted for by the variability in Y.

Female basketball profit was the only predictor variable included in both mathematical models, despite the average deficit accrued was approximately $500,000 dollars. Possible explanations for the significant relationship between FEMBBPR and FBPR are as follows 1) Relative to other women's sports, basketball produces the largest sum of revenue among Division I-A institutions. 2) Despite losing money on their women's basketball program, institutions are creating ways to minimize their losses and eventually are striving to produce a profit. 3) With increased television exposure, women's collegiate basketball will have to capitalize on revenue producing opportunities. Finally, the percentage of male athletes was significantly related to football profit. Considering a typical Division I-A football team is comprised of 90 male athletes, this was not a surprising result.

A Division I-A institutions ranking in the Sears Cup was not a significant predictor in either of the two mathematical models. However, there were negative relationships with both PROFIT and FBPR. Institutions ranked in the top five positions in the Sears Cup ranking failed to produce an overall profit within their athletic program

with the exception of one institution. Only the University of Florida produced a profit among the top five institutions listed in the Sears Cup rankings. Possible solutions for this inverse relationship were as follows 1) These numbers support the idea that high profile institutions are willing to operate their athletic departments at a financial loss in order to produce a winning product on the field. 2) Because the University of Florida's athletic department operates as a separate entity from other academic units within the university, they are able to produce a financial profit. 3) A majority of Division I-A athletic programs manipulate their reported financial data in order to appear as though they are losing dollars. Athletic directors may be concerned about the public perception of their programs if athletic departments are consistently reporting large sums of revenues.

Discussion of Other Analyses

The five institutions which generated the largest sums of revenue were also the same schools associated with spending more dollars to cover expenses. Specifically, a common philosophy was identified. That is, institutions believed in order to generate revenues, sufficient monies concurrently needed to be allocated. Football profit substantially relied on revenue resulting from ticket sales. All five institutions which generated the top football revenues played home games in stadiums that were among the largest in collegiate football. Facility maintenance and operation were substantial contributors to the total expenses accrued by Division I-A athletic programs. In addition to providing state of the art athletic facilities, Division I-A athletic programs allocated large sums of money for athletic scholarships, recruiting expenses, and salaries.

The University of Florida's average head coaches salary for both men's and women's teams were the highest in the country. Moreover, Florida's average salary for their women's coaches was almost 30% (29.50) more than any other institution in Division I-A athletics. Possible explanations for this salary discrepancy included 1) Philosophically, Florida compensated athletic coaches with these salaries in order to secure their services and keep other institutions from luring them away. 2) Paying coaches of female teams in the same framework as coaches of men's teams demonstrated the institutions commitment to gender equity.

Less than half (N=54) of the 112 Division I-A athletic programs were profit producing. However, the comprehension of these numbers is open to criticism. For example, institutions may alter their reported values in an attempt to appear as though they are losing money so that appropriated athletic monies are not reduced in the future. Also, numerous intangible measures including future alumni contributions, monies spent by fans during their visits to athletic contests, and the national and international visibility of the athletic program cannot be accurately quantified.

Finally, academic units that are consistently operating in financial deficits, may look unfavorably upon athletic programs that are revenue producing. Thus, the reported profitability percentages of Division I-A athletic programs may be favorably influenced. These financial reports may manipulate data, or in other situations, fail to accurately disclose monetary information regarding Division I-A athletic programs.

Conference affiliation and profitability were not specifically examined in this study. However, Table 4-3 identified the top 50 universities in the Sears Cup Rankings

and their conference affiliation. Tradition rich football institutions competing in the Big Ten, Big Twelve, and Southeastern conferences represented more than half (N=27) of the institutions in the top 50 rankings. The Atlantic Coast Conference (ACC) had every member of their conference (N=9) with the exception of Georgia Tech University positioned among the top fifty. Compared to the Big Ten, Big Twelve, and Southeastern conferences, the ACC has traditionally lagged behind these conferences in football tradition. However, the ACC annually dominates men's collegiate basketball strengthened by Duke University and the University of North Carolina at Chapel Hill.

Only one independent (N=7) institution, the University of Notre Dame, was represented in the top 50 rankings. Notre Dame was one of the select independents that produced a profit despite lacking conference membership for football. Although Notre Dame's television contract with the National Broadcasting Center (NBC) allowed exclusive coverage of all home football games, Sheehan (1996) reported the institutions athletic budget excluded the majority of television revenue in their descripted information. The university of Notre Dame competed as a member of the Big East Conference in all other sports including men's and women's basketball.

Based on these reported Sears Cup Rankings, institutions associated with major conferences, appeared to have an advantage over independent institutions with regards to a financially solvent athletic program. Athletic administrators representing institutions currently classified as an independent may need to obtain conference membership in the future to operate a financially profitable program. Joining a conference would allow institutions the opportunity to share in the distribution of bowl revenues, television

monies, and assist with the recruitment of future student athletes. These variables could influence independent I-A institutions to earnestly consider joining of one the major athletic conferences with the major purpose of increasing revenues.

The mean profit for Division I-A athletic programs reported in Table 4-3 was $250,497 dollars with the maximum profit generated by Pennsylvania State University totaling $18,730,905 dollars. Over 82% of this total resulted from football profit. When football revenue was removed as a contributing source, the average Division I-A athletic program lost $2,744,791 dollars. Only 27 institutions generated monies for their overall athletic program once football revenue was jettisoned from the equation. Thus, based on these findings, both academic and athletic leaders should carefully consider the ramifications of future budgetary restrictions targeted at the sport of football.

Over the past decade, football scholarships have been reduced from 95 scholarships to 85 scholarships. Recently, discussion has surfaced of additional cutbacks. However, additional reductions of football scholarships could create multiple dilemmas for Division I-A athletic programs. First, tampering with available scholarships may impact the quality of product displayed on the playing field. Consequently, factors that directly influence football revenue (ticket sales, television revenue, and donations) may be reduced. Next, although football sponsorship usually exacerbated an institution's ability to comply with Title IX, abolishing football scholarships eliminates participation opportunities for male student athletes.

On average, institutions which competed in Division I-A athletics, allocated 75% of expenses for male student athletes. Male athletes represented 66% of all scholarship

athletes. Several factors may have contributed to these numbers. First, the average male athletic scholarship expense was 48% greater than scholarship aid for female athletes. Creating methods to reduce the disparity of scholarship dollars allocated by gender within an athletic department, could result in additional savings utilized for other expenses. Moreover, the average men's head coaches salary exceeded the compensation for women's coaches by over 50%. Football and men's basketball coaches typically earned the largest salaries. Athletic directors may have justified higher salaries for coaches in these two sports based on the percentage of athletic revenue produced in football and men's basketball. Together, the average Division I-A football and men's basketball program accounted for profits exceeding $4,240,000 dollars. This surplus was significantly responsible for financially supporting all other Division I-A non revenue sponsored sports. Attempts to restrict the earning potential of football and men's basketball programs would intensify budgetary concerns. That is, the fiscal position of Division I-A athletic programs would be severely jeopardized.

Chapter Summary

The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. The model for PROFIT was:

$$\text{PROFIT} = 9561946 + 0.4279\text{FBPR} + 0.5803\text{MENBBPR} + 3.2787\text{FEMBBPR} + -31.8243\text{RCEXFEM}.$$

As expected, football profit was a strong predictor of fiscal solvency. Fulks (1996) reported that the average Division I-A collegiate athletic program for fiscal year 1995 generated 66% of their revenue from football. Profits generated from Men's basketball

programs was also a significant predictor. Pastore (1997) reported that Division I-A institutions continued to receive more than 90% of their sports team revenue from football and men's basketball. Together, the average Division I-A football and men's basketball program accounted for profits exceeding $4,240,000 dollars. This surplus was significantly responsible for financially supporting all other Division I-A non revenue sponsored sports. Of the 112 institutions analyzed in this research study, 76 institutions which competed in men's basketball were profitable with the typical program generating profits of $1,305,789 dollars. Women's basketball programs were not as financially solvent as men's programs.

The second mathematical model related the same 23 predictor variables with the dependent measure, FBPR. The decision to develop another mathematical model specific to football profit was supported by the strength of the relationship between football profit and overall profit found in the initial model. The predictor variables REV, FEMBBPR, and PMALE were statistically significant in the football profit model. As expected, revenue resulted in the strongest prediction. Typically, Division I-A programs accrued $13,711,291 dollars in revenue. Female basketball profit was the only predictor variable to be included in both mathematical models.

Sears Cup ranking was not a significant predictor in either of the two mathematical models. However, a negative relationship existed with both PROFIT and FBPR. Institutions with the highest rankings in the Sears Cup failed to produce a an overall profit within their athletic program.

Less than half (N=54) of the 112 Division I-A athletic programs were profit producing. An alarming pattern in collegiate athletics was the growing deficit among women's programs. Only four institutions produced a profit in women's basketball, typically the only women's sport that generated meaningful revenue.

Conference affiliation and profitability were not specifically researched in this study. However, Table 4-3 identified the top 50 universities in the Sears Cup Rankings and their conference affiliation. Tradition rich football institutions competing in the Big Ten, Big Twelve, and Southeastern conferences represented more than half (N=27) of the institutions in the top 50 rankings.

When football revenue was removed, the average Division I-A athletic program lost $2,744,791 dollars. Only 27 institutions generated monies for their overall athletic program once football revenue was jettisoned from the equation. On average, institutions which competed in Division I-A athletics, allocated 75% of expenses for male student athletes. Football scholarships significantly contributed to this distribution.

Recommendations for Future Study

The purpose of this study was to develop a mathematical model to predict fiscal solvency in Division I-A athletic programs. Football and men's basketball continued to generate the majority of revenue for Division I-A institutions. Additional information focusing on profit producing methods which may reduce the number of institutions operating at a deficit would appear to be beneficial. Particularly, studies identifying different methods that diminish the number of Division I-A women's programs operating at a deficit merits consideration. Specifically, understanding the successful techniques

implemented by athletic programs which are already financially solvent are needed. That is, identifying the commonalities shared by profitable institutions could assist other athletic programs. These suggestions and ideas once implemented could enhance an institution's opportunities to conduct a financially solvent athletic program.

Another study which correlated the experience and educational background of athletic directors with the institution's financial position could identify specific trends of leaders who have demonstrated the ability to operate an athletic program that is fiscally solvent. Explicitly, do those institutions producing profits possess leaders with specific experiences? Over the past decade, Division I-A institutions including the University of Michigan, have successfully recruited athletic directors from outside agencies including chief executive officers of major corporations. Research identifying the faculties required to administer a profitable Division I-A athletic program could possible increase the number of financially profitable institutions.

Because exact reporting of revenues and expenses were difficult to assess, a follow up study comprised of information collected by another EADA report would be appropriate. Errors in the initial collection, categorizing, and reporting of data would be reduced. Institutions will undoubtedly develop improved accounting methods for the reporting of their financial data. Familiarity with the EADA instrument should result in more Division I-A athletic programs accurately reporting their required financial information.

A study spotlighting the financial solvency of institutions shifting from Division I-AA to Division I-A with the intention of competing at the highest level would be of

interest. Administrators contemplating the difficult decision of reclassification could utilize documented information as a reference point. Currently, minimal information is available that documents distinctive trends in the reclassification of collegiate athletic programs. Fulks (1998) documented financial relationships and trends for all college divisions conducted for the NCAA. Further studies could be conducted to develop specific guidelines enabling institutions to evaluate their respective classification.

This study examined data covering one fiscal year. Additional research analyzing multiple years may reveal trends that are time sensitive. Specifically, a longitudinal study based on the same predictor variables covering a three to five year period, may explain trends in the market that would otherwise go unnoticed. Broadening this study to include Division I-AA, Division II, and Division III athletic programs may yield additional generalizable results, conclusions, and recommendations. Specifically, mathematical models could be constructed for all NCAA divisions which identify the significant variables necessary to operate an athletic program that is financially solvent.

Research which identified the role of athletic booster contributions, number of dollars collected as a result of student fees assessed, and the institutions student population and their relationship with the fiscal solvency of an athletic program would be useful.

Final Conclusion

The financial solvency of Division I-A athletic programs has been and will continue to be an issue that constantly challenges future leaders. Although specific significant relationships were identified in this research study, future research that can

assist athletic administrators in directing athletic programs which are revenue producing would appear extremely valuable. Conclusively, institutions must constantly explore various techniques which create mechanisms to operate within mandated NCAA rules, field competitive athletic teams, and concurrently generate a profit. Whereas the EADA was fundamentally developed to assess an institution's progress toward gender equity, secondary outcomes will undoubtedly materialize. Issues relating to the recruiting procedures of female athletes, legal adherance toTitle IX legislation, and devising strategies to operate a fiscally solvent athletic program will test current and futurt athletic leaders.

APPENDIX A
DIVISION I-A INSTITUTIONS AND CONFERENCE AFFILIATION

Appendix A

Institution	Conference Affiliation
Clemson University	Atlantic Coast Conference
Duke University	Atlantic Coast Conference
Florida State University	Atlantic Coast Conference
Georgia Tech University	Atlantic Coast Conference
North Carolina St. University	Atlantic Coast Conference
University of Maryland	Atlantic Coast Conference
University of North Carolina	Atlantic Coast Conference
University of Virginia	Atlantic Coast Conference
Wake Forest University	Atlantic Coast Conference
Boston College	Big East Conference
Rutgers University	Big East Conference
Syracuse University	Big East Conference
Temple University	Big East Conference
University of Miami	Big East Conference
University of Pittsburgh	Big East Conference
Virginia Tech University	Big East Conference
West Virginia University	Big East Conference
Indiana University	Big Ten Conference
Michigan St. University	Big Ten Conference
Northwestern University	Big Ten Conference
Ohio St. University	Big Ten Conference
Penn St. University	Big Ten Conference
Purdue University	Big Ten Conference
University of Illinois	Big Ten Conference
University of Iowa	Big Ten Conference
University of Michigan	Big Ten Conference
University of Minnesota	Big Ten Conference
University of Wisconsin	Big Ten Conference
Baylor University	Big Twelve Conference
Iowa State University	Big Twelve Conference
Kansas St. University	Big Twelve Conference
Oklahoma St. University	Big Twelve Conference
Texas A & M University	Big Twelve Conference
Texas Tech University	Big Twelve Conference

Appendix A--continued

University of Colorado	Big Twelve Conference
University of Kansas	Big Twelve Conference
University of Missouri	Big Twelve Conference
University of Nebraska	Big Twelve Conference
University of Oklahoma	Big Twelve Conference
University of Texas	Big Twelve Conference
Boise St. University	Big West Conference
New Mexico St. University	Big West Conference
University of Idaho	Big West Conference
University of Nevada	Big West Conference
University of North Texas	Big West Conference
Utah St. University	Big West Conference
East Carolina University	Conference USA
Southern Miss University	Conference USA
Tulane University	Conference USA
University of Cincinnati	Conference USA
University of Houston	Conference USA
University of Louisville	Conference USA
University of Memphis	Conference USA
Arkansas St. University	Independent
Louisiana Tech University	Independent
University of Alabama Birmingham	Independent
University of Central Florida	Independent
United States Military Academy	Independent
United States Naval Academy	Independent
University Northeastern Louisiana	Independent
University of Notre Dame	Independent
University Southwestern Louisiana	Independent
Ball St. University	Mid-American Conference
Bowling Green University	Mid-American Conference
Central Michigan University	Mid-American Conference
Eastern Michigan University	Mid-American Conference
Kent St. University	Mid-American Conference
Marshall University	Mid-American Conference
Miami of Ohio University	Mid-American Conference
Ohio University	Mid-American Conference
University of Akron	Mid-American Conference
University of Northern Illinois	Mid-American Conference
University of Toledo	Mid-American Conference
Western Michigan University	Mid-American Conference

Appendix A--continued

Arizona St. University	Pacific Ten Conference
Oregon St. University	Pacific Ten Conference
Stanford University	Pacific Ten Conference
UCLA University	Pacific Ten Conference
University of Arizona	Pacific Ten Conference
University of California	Pacific Ten Conference
University of Oregon	Pacific Ten Conference
University of Southern California	Pacific Ten Conference
University of Washington	Pacific Ten Conference
Washington St. University	Pacific Ten Conference
Auburn University	Southeastern Conference
Louisiana State University	Southeastern Conference
Mississippi State University	Southeastern Conference
University of Alabama	Southeastern Conference
University of Arkansas	Southeastern Conference
University of Florida	Southeastern Conference
University of Georgia	Southeastern Conference
University of Kentucky	Southeastern Conference
University of Mississippi	Southeastern Conference
University of South Carolina	Southeastern Conference
University of Tennessee	Southeastern Conference
Vanderbilt University	Southeastern Conference
Brigham Young University	Western Athletic Conference
Colorado St. University	Western Athletic Conference
Fresno St. University	Western Athletic Conference
Rice University	Western Athletic Conference
San Diego St. University	Western Athletic Conference
San Jose St. University	Western Athletic Conference
Southern Methodist University	Western Athletic Conference
Texas Christian University	Western Athletic Conference
United States Air Force Academy	Western Athletic Conference
University of Hawaii	Western Athletic Conference
University of Nevada Las Vegas	Western Athletic Conference
University of New Mexico	Western Athletic Conference
University of Texas El Paso	Western Athletic Conference
University of Tulsa	Western Athletic Conference
University of Utah	Western Athletic Conference
University of Wyoming	Western Athletic Conference

APPENDIX B
FEDERAL REGISTER
EQUITY IN ATHLETICS DISCLOSURE ACT

Equity in Athletics Disclosure Act--Optional Form (DRAFT)

All co-educational institutions of higher education that participate in any federal student financial aid program (Federal Pell, Federal SEOG, and Federal SSIG Grants; Federal Work Study; and Federal Family Education, Federal Perkins, and William D. Ford Federal Direct Loans) and have intercollegiate athletic programs must provide information concerning their intercollegiate athletic programs under the Equity in Athletics Disclosure Act of 1994, Section 360B of Pub. L.103-382. This Act and accompanying federal regulations require that the following information, based on the previous reporting year, be available for inspection by students, prospective students, and the public by October 1, 1996, and by October 15 each year thereafter. An institution may use this or any format to disclose this information.

I. General Information

A. Institution:_____

Information is for the reporting year beginning _____ and ending_____

B. *Optional*

Name of person completing form:_____

Signature:_____

Title:_____

Phone:_____

Date completed:_____

Current Organizational Classification:

NCAA Division_____ NAIA Division_____ Other_____

C. Enrollment: Indicate the number of undergraduates by gender:

	#	%
Male undergraduates	____	____
Female undergraduates	____	____
Total undergraduates	____	100%

II. Intercollegiate Athletics— Varsity Teams

A. Athletic Participation: Indicate the number of participants by gender for each varsity team. A participant is a student athlete who either a) is listed as a team member, b) practices with the team and receives coaching as of the day of the first scheduled intercollegiate contest, or c) receives athletically-related student aid. Mark coed teams, specify "other" teams, and use additional pages if necessary.

PROGRAM	MEN'S TEAMS	WOMEN'S TEAMS
BASKETBALL		
BASEBALL		
CROSS COUNTRY		
DIVING		
FENCING		
FIELD HOCKEY		
FOOTBALL		
GOLF		
GYMNASTICS		
ICE HOCKEY		
LACROSSE		
RIFLE		
ROWING		
SKIING		
SOCCER		
SOFTBALL		
SQUASH		
SWIMMING		
SYNCHRONIZED SWIMMING		
TRACK & FIELD		
TEAM HANDBALL		
TENNIS		
VOLLEYBALL		
WATERPOLO		
WRESTLING		
OTHERS (SPECIFY TEAMS)		
TOTAL PARTICIPANTS		

B. Operating Expenses: For each team, please indicate total institutional expenditures for lodging, meals, transportation, officials, uniforms and equipment for both home and away games. You may report co- ed team expenses separately, or pro-rate them as part of men's and women's teams' expenses, but you may not report the same coed expenses both ways. Specify all "other" teams and use additional pages if necessary.

PROGRAMS	MEN'S TEAMS	WOMEN'S TEAMS	CO-ED TEAMS	TOTALS
BASKETBALL				
BASEBALL				
CROSS COUNTRY TRACK & FIELD				
FENCING				
FIELD HOCKEY				
FOOTBALL				
GOLF				
GYMNASTICS				
ICE HOCKEY				
LACROSSE				
RIFLE				
ROWING				
SKIING				
SOCCER				
SOFTBALL				
SQUASH				
SWIMMING & DIVING				
SYNCHRONIZED SWIMMING				
TEAM HANDBALL				
TENNIS				
VOLLEYBALL				
WATER POLO				
WRESTLING				
OTHERS (SPECIFY TEAMS)				
TOTAL EXPENSES	$ (%)	$ (%)	$ (%)	$ (100%)

C. **Head Coaches:** For each team, please indicate the gender of the head coach (including volunteers) and whether the head coach is assigned to the team on a full-time or part-time basis. Specify "other" teams, and use additional pages if necessary.

PROGRAMS	HEAD COACH MEN'S TEAMS				HEAD COACH WOMEN'S TEAMS				HEAD COACH CO-ED TEAMS			
	MALE		FEMALE		MALE		FEMALE		MALE		FEMALE	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
BASKETBALL												
BASEBALL												
CROSS COUNTRY												
DIVING												
FENCING												
FIELD HOCKEY												
FOOTBALL												
GOLF												
GYMNASTICS												
ICE HOCKEY												
LACROSSE												
RIFLE												
ROWING												
SKIING												
SOCCER												
SOFTBALL												
SQUASH												
SWIMMING												
SYNCHRONIZED SWIMMING												
TEAM HANDBALL												
TENNIS												
TRACK & FIELD												
VOLLEYBALL												
WATER POLO												
WRESTLING												
OTHERS												
TOTALS												

Federal Register / Vol. 60, No. 229 / Wednesday, November 29, 1995 / Rules and Regulations 61439

D. Assistant Coaches: For each team, please indicate the number of assistant coaches by gender (including volunteers) and whether they are assigned to the team on a full-time or part-time basis. Specify "other" teams and use additional pages if necessary.

PROGRAMS	ASS'T COACHES MEN'S TEAMS				ASS'T COACHES WOMEN'S TEAMS				ASS'T COACHES CO-ED TEAMS			
	MALE		FEMALE		MALE		FEMALE		MALE		FEMALE	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
BASKETBALL												
BASEBALL												
CROSS COUNTRY												
DIVING												
FENCING												
FIELD HOCKEY												
FOOTBALL												
GOLF												
GYMNASTICS												
ICE HOCKEY												
LACROSSE												
RIFLE												
ROWING												
SKIING												
SOCCER												
SOFTBALL												
SQUASH												
SWIMMING												
SYNCHRONIZED SWIMMING												
TEAM HANDBALL												
TENNIS												
TRACK & FIELD												
VOLLEYBALL												
WATER POLO												
WRESTLING												
OTHER (SPECIFY TEAMS)												
TOTALS												

Please provide definitions of full-time and part-time coaches:

III. Overall Athletics Program

A. **Recruiting Expenditures:** Please report the total institutional expenditures associated with recruiting for the men's and women's teams. Costs include, but are not limited to: transportation, lodging and meals for both recruits and institutional personnel engaged in recruiting; expenditures for on-site visits; and all other major expenses logically-related to recruiting. You may report expenditures for coeducational teams separately, or as a pro-rated portion of the expenditures reported for men's men's and women's teams. Do not list the same expenses under both men's or women's teams and coeducational teams.

Men's Teams	$_____	_____%
Women's Teams	$_____	_____%
Coeducational Teams	$_____	_____%
Total	$_____	100%

Please explain how these figures were derived:

B. **Revenue:** Please report the total revenue for the reporting year generated by all men's and women's teams. You may report revenues for coeducational teams separately, or as a pro rated portion of the revenues reported for men's and women's teams. Do not report the same revenues under both men's or women's teams and coeducational teams.

Men's Teams	$_____	_____%
Women's Teams	$_____	_____%
Coeducational Teams	$_____	_____%
Total	$_____	100%

C. **Athletically-Related Student Aid:** Please report the total amount of athletically-related student aid awarded men and women student athletes. Athletically-related student aid is aid awarded a student that requires the student to participate in an intercollegiate athletics program.

Athletically-related student aid awarded male athletes $_____ ___%

Athletically-related student aid awarded female athletes $_____ ___%

Total amount of athletically-related student aid $_____ 100%

D. **Head Coaches' Salaries:** Please report the average annual institutional salary of the head coaches of the men's and women's teams. Volunteer head coaches and head coaches whose salaries are paid by entities other than this institution are excluded from this calculation. You may report average salaries of head coaches of coeducational teams separately, or as a pro rated portion of the salaries of head coaches of men's and women's teams. Do not list the same salaries under both men's or women's teams and coeducational teams. Institutions are encouraged to report the number of coaches to clarify the number of salaries represented in the average.

Average salary of head coaches for men's teams $_____
Number of head coaches included in this average: ____

Average salary of head coaches for women's teams $_____
Number of head coaches included in this average ____

Average salary of head coaches for coeducational teams $_____
Number of head coaches included in this average ____

E. **Assistant Coaches' Salaries:** Please report the average annual institutional salary of the assistant coaches for the men's and women's teams. Volunteer assistant coaches and assistant coaches whose salaries are paid by entities other than this institution are excluded from this calculation. You may report the average salary of assistant coaches for coeducational teams separately, or as a pro rated portion of the salaries of assistant coaches of men's and women's teams. Do not report the same salaries under both men's or women's teams and under coeducational teams. Institutions are encouraged to report the number of coaches to clarify the number of salaries represented in the average.

Average salary of assistant coaches for men's teams $_____
Number of assistant coaches included in this average ____

Average salary of assistant coaches for women's teams $_____
Number of assistant coaches included in this average ____

Average salary of assistant coaches for coeducational teams $_____
Number of assistant coaches included in this average ____

IV. Optional Section

An institution is encouraged to provide here any further information it believes might be helpful to students, prospective students, or the public to interpret the information provided above, or that might help a prospective student-athlete make an informed choice of an athletic program. For example, an institution may include here a history of its athletic programs, or explanations of unusual or exceptional circumstances that would better explain the data or their significance.

APPENDIX C
PREDICTOR VARIABLE
ABBREVIATIONS AND INTERPRETATIONS

Appendix C

PREDICTOR VARIABLE	ABBREVIATION
Percent Expenses Male	PEXPMAL
Teams Sponsored	TEAMS
Female Basketball Profit	FEMBBPR
Football Profit	FBPR
Men's Basketball Profit	MENBBPR
Sears Cup Ranking	SEARS
Total Athletes	TOTATH
Percent Male Athletes	PMALE
Operating Expenses Males	OPEXMAL
Operating Expenses Females	OPEXFEM
Recruiting Expenses Males	RECXMAL
Recruiting Expenses Females	RCEXFEM
Percent Recruiting Expenses Male	PREEXMA
Men's Revenue	MREVE
Women's Revenue	WREVE
Financial Aid Males	AIDMAL
Financial Aid Females	AIDFEM
Average Head Coaches Salary Males	AVGHCME
Average Head Coaches Salary Females	AVGHCFE

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BIOGRAPHICAL SKETCH

Born on May 30, 1968, in Chicago, Illinois, Michael John Mondello was raised by his parents, Tom and Mary Mondello. After graduating from Lakeland High School in Lakeland, Florida, he earned a Bachelor of Science degree from the University of South Florida in 1990. He then attended the University of Florida to pursue his Master of Science degree in sport management. After coaching basketball on the collegiate and high school levels, Michael enrolled in the College of Education at the University of Florida as a Ph.D. candidate in Educational Leadership with an emphasis in Higher Education Administration under the direction of Dr. David S. Honeyman. While serving as the Assistant Department Chair in the Department of Exercise and Sport Sciences, he completed his dissertation and was awarded the Ph.D. degree in May, 1999.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

David S. Honeyman, Chair
Professor of Educational Leadership

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

C. Arthur Sandeen
Professor of Educational Leadership

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

M. David Miller
Professor of Foundations of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May 1999

Dean, College of Education

Dean, Graduate School